DECEMBER 19, 1960

PAPER TRADE JOURNAL

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Promote Formation and Wire Life With a Double Wire Fourdrinier

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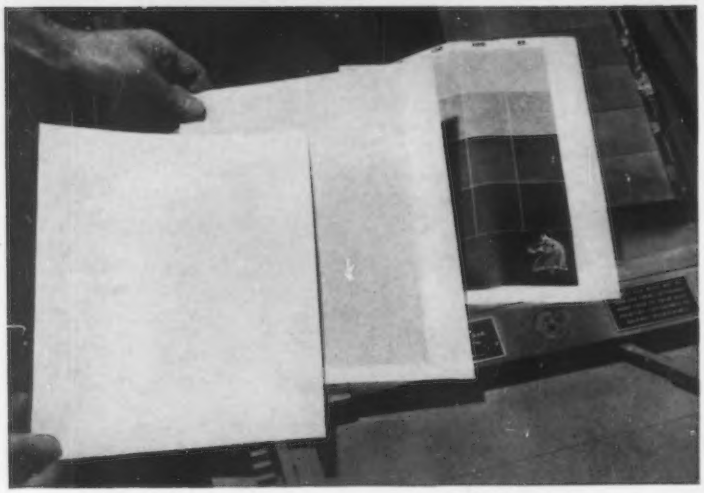

Printing properties and resistance to show-through of papers pigmented with titanum dioxide are evaluated on a proof press in the paper laboratory.

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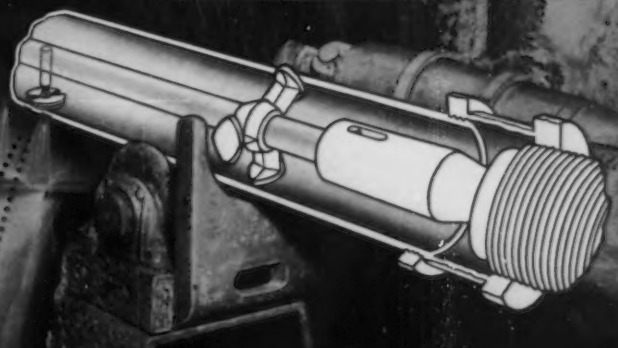

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REMEMBER THESE DATES

January 24-27, Technical Section, CPPA Annual Meeting, Queen Elizabeth Hotel, Montreal, Canada

February 20-23, Paper Week in New York

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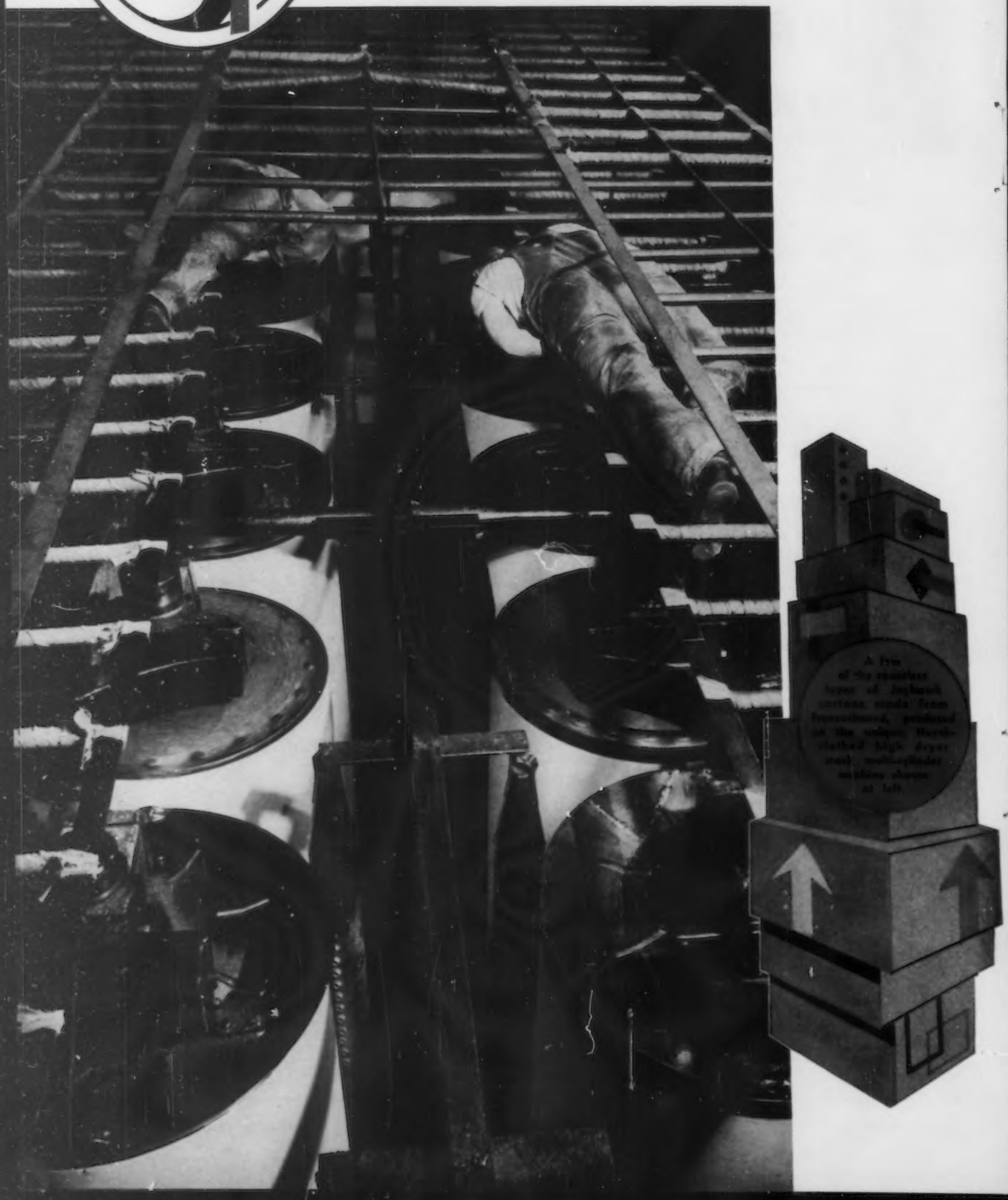

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Late last year, skilled papermakers of Lawrence Paper Company, Lawrence, Kansas, scored an all-time record in the production of their celebrated Jayhawk Freezurboard — an exceptionally sturdy, moisture-resistant corrugated medium made from pulp impregnated with a bituminous substance. The uniquely constructed high dryer stack, multi-cylinder machine, running for 454.6 hours, chalked-up a new high of 1,598,939 pounds of paper in a variety of grades — all carried by a Huyck 4-D treated bottom felt, lasting 30% longer than any clothing previously used.

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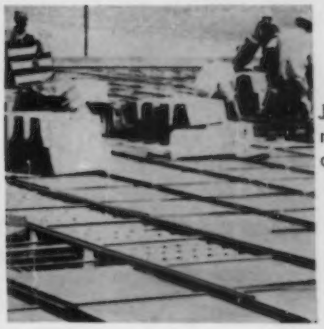
JAYHAWK FREEZURBOARD FORMS PRODUCED BY LAWRENCE PAPER COMPANY'S CONSTRUCTION DIVISION.



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The Patton Manufacturing Company, Inc., Springfield, Ohio, invites your inquiry for further information.

Trends

Pulp Production Still Running Ahead

Total woodpulp production in October was 2% above the same month in 1959. For the ten month period total output of pulp was ahead by 4%. Domestic shipments of market pulp were off 16% from October of last year while exports were up 90% for the month. Market pulp shipments for the first ten months of 1960 versus ten months of 1959 were; domestic −4% and export +97%.

Forecast 27% Increase in Book Sales

Something like 1.2 million books will probably be sold by the American book industry in 1965, an increase of about 27% over the 1958-1959 average according to the BMI-Hunt Survey made for the Book Manufacturers Institute. The average of 1958 and 1959 sales is used because 1958 was a relatively poor year and 1959 a relatively good year for book sales. Book paper manufacturers interested in more details may obtain a copy of the survey from the Book Manufacturers Institute, 25 West 43rd St., New York 36, N. Y. for 50 cents.

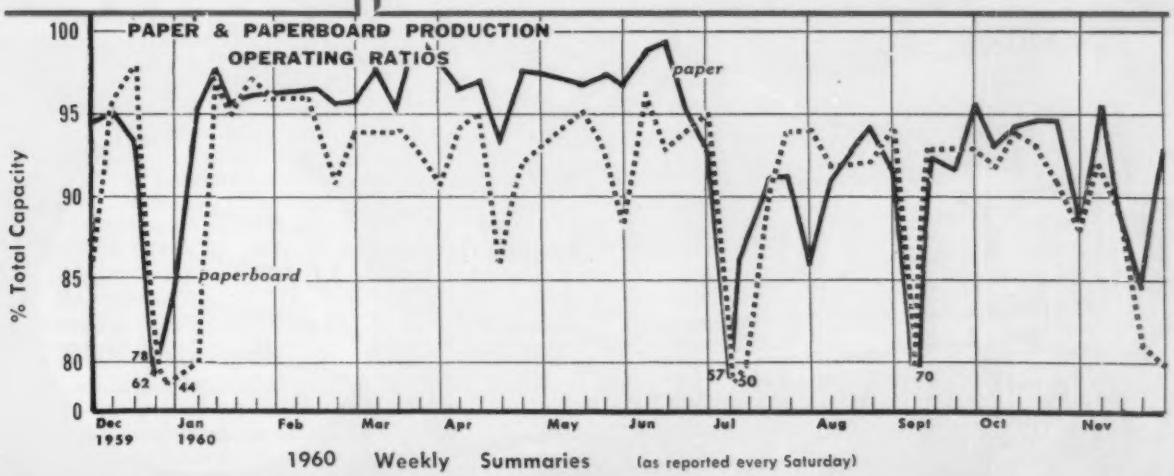
How Tall Oil Chemical Output has Grown

In 15 years U. S. production of tall oil fatty acids has zoomed from practically nothing to 150 million pounds a year. Details on the development of this new class of chemicals is given in an article on page 33 of this issue.

Canadian Fine Paper off in October

Canadian fine paper production in October was off 8% from October 1959, partly due to one less working day. For the ten month period output was 3% above 1959.

Season's Greetings to all our Readers



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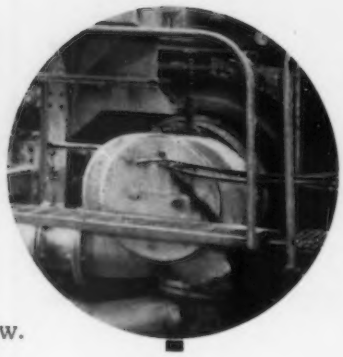

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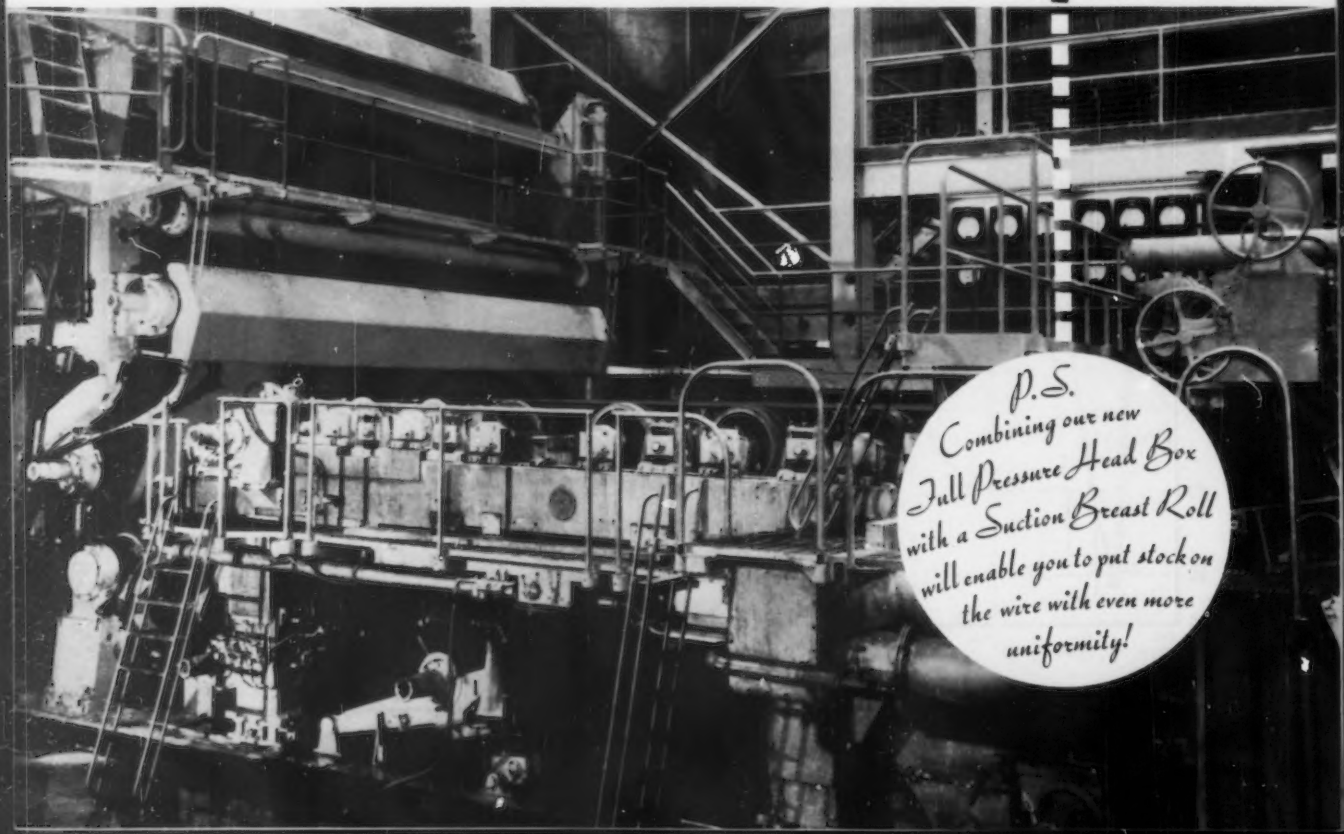
P.S.
Combining our new Full Pressure Head Box with a Suction Breast Roll will enable you to put stock on the wire with even more uniformity!

PAPER TRADE JOURNAL

WEEK OF DECEMBER 19, 1960

Packaging Corp. to Acquire Worcester Moulded Plastics Co.

Plans to enter the plastic industry by acquiring Worcester Moulded Plastics Co. of Worcester, Mass., have been announced by Packaging Corp. of America.

Walter S. Goodspeed, chairman of Packaging Corp.'s Executive Committee, said the Worcester firm, a pioneer and one of the leading custom molders of both expanded and injection plastic, will form the nucleous of a broad new plastics division. He said the move now being negotiated will result in a major marriage of expanded polystyrene plastic and paperboard packaging materials. The new plastics division will enable Packaging Corporation to provide industry with a long-desired single source of supply and design talent for both packaging materials.

In the injection molded field, the Worcester firm is one of the nation's largest manufacturers of plastic radio cabinets. It also produces television lens, dials, and other parts, product carrying cases, and a wide range of other products made by injection molding of polystyrene and other thermoplastics.

Horace Gooch, co-founder and treasurer of Worcester Moulded Plastics Co., is slated to become vice president of Packaging Corp., of America in charge of the plastics division. Philip J. Graham, president and co-founder, will head the research, engineering and machine development of the new division.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending December 3, 1960, at 93.0 per cent, compared with 85.8 per cent, revised, for the preceding week. The ratio was 95.9 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending December 3, 1960, at 79 per cent, compared with 81 per cent for the preceding week and 86 per cent for the corresponding week a year ago.

(Detailed Statistics on page 54)

Construction Starts on N. J. Waste Paper Newsprint Mill

Construction has started on Garden State Paper Co.'s new mill at Garfield, N. J. Located on an 11 acre tract alongside the Passaic River, the mill will produce newsprint, utilizing deinked waste paper as raw material.

The project includes a deinking plant which will utilize a process developed by the newspaper publishing company. It is said that this will be the first modern installation using waste paper in the manufacture of newsprint.

Scheduled for completion in early 1962, the mill's production facilities include a 228 inch Rice Barton paper machine. Initial capacity of the mill is expected to be 150 tons per day and will eventually reach 185.

Columbia Hardboard to Build Canadian Plant

Columbia Hardboard Co., Seattle, has announced plans for a hardboard mill at Sprague in southeast Manitoba. Construction has started with production scheduled for 1961.

SCHOLARSHIP COMMITTEE of the University of Maine Pulp and Paper Foundation honored 24 recipients of grants amounting to $37,100 for students in the fifth year pulp and paper program, and 34 recipients of undergraduate scholarships totalling $17,200 at a dinner in November. At the head table, left to right: John D. Cowan, executive vice president, West Virginia Pulp & Paper Co., and chairman, Scholarship Committee; Dr. Alfred H. Nissan, speaker, Rensselaer Polytechnical Institute; Dean Weston S. Evans, presiding; M. C. McDonald, president, Great Northern Paper Co., and vice president, Pulp and Paper Foundation; Dr. Lloyd H. Elliott, president, University of Maine.

Joa Unit Sold To Scott Paper

Joa Co., Lake Wales, Fla., producer of sanitary napkins, has been purchased by the Falls Paper & Power Co., Oconto Falls, Wis., a subsidiary of Scott Paper Co., Chester, Pa.

The Florida firm was headed by Curt G. Joa, president of Curt G. Joa, Inc., at Sheboygan Falls, Wis. Joa Co. was separate from the Sheboygan Falls firm.

The purchase involved $1,600,000 worth of Scott common stock, the announcement said.

Joa Co. will remain in Florida as a subsidiary of Scott.

Syracuse Univ. Receives Calder Foundation Gift

The State University College of Forestry at Syracuse University has received a gift of $25,000 from The Louis Calder Foundation, for graduate fellowships in Pulp and Paper Technology.

The financial stipends, to be designated as the Louis Calder Fellowships in Pulp and Paper Technology, will be awarded annually on the basis of merit, ability and need.

In making the announcement, Prof. F. W. O'Neill expressed the appreciation of the College of Forestry for having been selected as the recipient of the $25,000 gift.

Ten Month Canadian Production Figures Issued

Owing in part to one less working day, Canadian fine paper production was down in October from a year ago. But it was up for the first ten months of the year, and in both periods shipments were ahead of 1959.

Output for the month was 23,647 tons compared with 25,674 tons in October 1959. This brought the ten-month 1960 production figure to 241,246 tons, up 3.0 per cent from 234,182 tons in the same period of last year.

Shipments in October, at 23,709 tons, showed a gain over 23,072 tons a year earlier. They included 1,912 tons exported, compared with 1,565 tons in October 1959. For the January-October period, shipments of 241,698 tons in 1960 were up 6.7 per cent from 226,475 in 1959.

The ten-month output of coated paper amounted to 28,869 tons this year, a gain of 2.3 per cent from last year. Shipments were 28,479 tons and 28,074 tons, respectively.

Chidester to Be Honored

G. H. Chidester

G. H. Chidester, Chief of the U. S. Division of Pulp and Paper, U. S. Forest Products Laboratory, Madison, Wis., has been selected as the recipient of the 1961 TAPPI Medal by the Executive Committee. The presentation will be at the Annual Meeting of the Association, to be held February 20-23, 1961, at the Hotel Commodore, New York, N. Y.

Mr. Chidester was born in Hastings, Michigan. After graduating from the University of Michigan in 1920, he joined the technical staff of Kimberly-Clark Corp., where he became assistant pulp mill superintendent in a relatively short time. For a short time he held a position on the editorial staff of Paper Industry. In 1925 he joined the technical staff of the Forest Products Laboratory, where he undertook various surveys dealing with the problem of fiber loss in pulp and paper mill operation. Publication of his recommendations was one of the first of its type and established systems for determining losses and recovering fibers from pulp and paper mills, many of which are still followed today.

Various investigations were successfully conducted by him on problems concerning such processing procedures as the rod mill for paper stock preparation, hardwood newsprint, high-yield bleached semi-chemical pulps, and sulphite and acid sulphite semi-chemical processes.

On May 1, 1942, Mr. Chidester was appointed Chief of the Division of Pulp and Paper, for which he has continually provided technical and administrative direction. During World War II, the shortage of metals necessitated the development of substitute products from paper. Mr. Chidester was directly responsible for the development of Papreg, a high-strength paper-base laminate. Adaptations for various purposes were also found for proximity fuses, lignin and resin-treated papers, wood fiber mats and sulphite pulps.

In June 1960 a bronze plaque was presented to the Laboratory by the American Paper and Pulp Association on the occasion of its Golden Anniversary, significant recognition of the development of semi-chemical and cold soda pulping processes, under Mr. Chidester's direction.

In 1952 the Forestry Division of the Food and Agriculture Organization of the United Nations requested Mr. Chidester's presence in Rome to prepare a technical report covering the possibilities for the manufacture of pulp and paper from various fibrous materials available from world-wide sources. His ensuing document was later published by FAO and has since been recognized in countries throughout the world as a basic reference on the manufacture of pulp and paper.

In 1954 he was asked by the Economic Commission for Latin America and the Food and Agriculture Organization of the United Nations to participate in a meeting in Buenos Aires to discuss possibilities for expansion of the pulp and paper industry in Latin American countries. In 1955 he conducted a survey for the International Cooperation Administration, on the possibilities for development of a pulp and paper industry in Surinam. A similar survey was conducted by him in 1956 on the expansion of the pulp and paper industry in Turkey, at the request of a Turkish government bank. A study made by him in Israel resulted in the development of techniques for pulping cornstalks for certain grades of paper made there.

In October 1960 Mr. Chidester presided over a pulp and paper meeting in Tokyo, sponsored by FAO and the Economic Commission for the Far East.

Mr. Chidester's work has contributed significantly to the progress of the industry. A man of international stature in his field, he is also in large part responsible for the development of men who have served under him—a number of whom now hold increasingly responsible technical positions in major pulp and paper and related companies.

PAPER PEOPLE

William Luchesi

A. E. Beecher

Blandin Elects Luchesi Vice President, Sales

At the meeting of the board of directors of Blandin Paper Co., Grand Rapids, Minn., on November 1, William Luchesi, sales manager for the paper company, with offices at 200 East 42nd Street, New York City, was elected vice president in charge of sales.

Mosinee Paper Promotes Schneider

Mosinee Paper Mills Co., has announced the promotion of Donald J. Schneider to the position of group leader, product development and technical service.

Mr. Schneider had been a project engineer with the Mosinee, Wis., firm since his graduation from the University of Wisconsin in January 1959.

Western Kraft Transfers Heinemann to Richmond

Walter Heinemann, office manager of Western Kraft Corp., Albany, Ore., the last five years, has been transferred to Richmond, Calif., where he will be manager of Western Kraft's Richmond plant, recently acquired in the Albany firm's expansion program.

Mr. Heinemann will be replaced by Russell Sheffer, now production planner for the Albany plant. Mr. Heinemann was formerly manager of Western Kraft's Portland office.

St. Regis Adds Personnel In R & D Departments

Alfred E. Beecher has joined the Research and Development Department of the St. Regis Paper Co. as a research engineer. He will be located in the engineering physics laboratories at East Providence, R.I. As a part of the company's over-all research program, he will carry on fundamental studies of dynamics and control and applied studies of instrumentation in the fields of pulp production, papermaking, and converting.

Other professional personnel have been added to the St. Regis research and development organization at Carthage, N.Y. and Deferiet, N.Y.

Obie C. Burt, Jr., has joined the coating development group at Carthage. He has a B.S. degree in chemistry from Guilford College in North Carolina. Mr. Burt had been a chemist with the Lily Tulip Cup Corp.

Robert M. Benjamin has joined the pulping development group at Deferiet. He has a B.E. degree in chemical engineering from Nova Scotia Technical College, Halifax, Nova Scotia. He had previously been associated with Bathurst Power & Paper Co.

Edward R. Hoffman has been named supervisor of statistical services at Carthage. He had been chief statistician with Oxford Paper Co., Rumford, Me., and had previously done physical research and quality control work with Hammermill Paper Co. He holds a B.S. degree in electro-chemical engineering from Pennsylvania State University.

Maynard C. Nieboer has joined the coating research group at Carthage. He had been a research chemist with Mead Corp., Chillicothe, Ohio. He holds a B.S. degree in chemistry and paper technology from Western Michigan University.

Continental-Diamond Fills R&P Laboratory Posts

Two new positions have been filled in the Central Research & Development Laboratories of Continental-Diamond Fibre Corp., Newark, Del.

Richard B. Goodrich joins the fibre research section as a research engineer and Karel J. J. Brouwers is assigned as research specialist in the polymer research section.

A. H. Nadelman

Nadelman Resigns At Western Michigan

A. H. Nadelman, head of Western Michigan University's paper technology department, has resigned his position effective the end of the present semester. Dr. Nadelman has not revealed his future plans but has indicated that he intends to continue to make his home in Kalamazoo.

Dr. Nadelman came to Western Michigan in 1948 to direct the new pulp and paper program, then a part of the chemistry department. Under his guidance the program has grown to more than 100 students with its own building, fine equipment and a full time faculty of five persons. It has also gained departmental status in 1955.

A native of Stettin, Germany, Dr. Nadelman came to the United States in 1938 and was employed as chief chemist by Milprint, Inc., Milwaukee; as chief research chemist by Glassine Paper Co., Philadelphia, and as technical superintendent by International Paper Co., Niagara Falls, N. Y., before joining the WMU faculty.

J. W. Field

A. R. Boren

C. N. Rogers

New Technical Director Joins Packaging Institute

James W. Field formerly with TAPPI (Technical Association of the Pulp and Paper Industry) has joined the staff of the Packaging Institute effective December 1.

Mr. Field will be the Packaging Institute's Technical and Field Service Director supervising the accelerated programs in all areas of the Institute's national technical activities.

A Temple University graduate, Mr. Field served West Virginia Pulp and Paper Co. as a chemist before joining the technical staff of TAPPI.

Walker Appointed By La Boiteaux

La Boiteaux Co. has announced the appointment of J. L. Walker, Jr., as sales manager, Eastern Board Division, particularly to service Baltimore, Philadelphia, Richmond, and their immediate areas.

Preston Honored For Israel Service

Harry Preston, president of the Golden Fleece Tissue Co., will be honored for his long service to Israel at a dinner at the Waldorf Astoria on Wednesday, December 21 (6 P.M.), sponsored by the Paper, Corrugated and Allied Paper Trades Industries Division of State of Israel Bonds.

Mr. Preston was instrumental in the critical early days of Israel's statehood in arranging a loan to help the young democracy to meet its pressing financial obligations. He was one of the men who helped to launch the Israel Bond drive ten years ago in consultation with the government of the Jewish State and he has continued to play a leading role in the Israel Bond campaign both in his community and in his trade.

Boren Elected President, Fourdrinier Kraft Board

A. Rodney Boren, a vice president of the Mead Corp., has been elected president and treasurer of the Fourdrinier Kraft Board Institute, Inc. George B. Gibson, who has been executive director of the Institute for 18 years, has asked to be relieved of his major responsibilities. He will continue as a consultant. Mr. Boren will be the first full-time president of the Institute; officials of member companies have previously served as president. The Institute, which is composed of 14 kraft board manufacturers, has its headquarters at 99 Park Avenue, New York City.

Mr. Boren joined Mead in 1949 in paperboard sales, was elected assistant to the vice president in 1953, and a vice president in 1957.

Extending wishes for happy retirement to Robert A. Gates are Norman Bardeen (left), vice president, and Maxwell D. Bardeen (right), president, Simpson Lee Paper Co. A party was held at the San Francisco Commercial Club to honor Mr. Gates upon his retirement December 1. His retirement marks nearly 50 years of active participation in the paper industry, of which the past 25 years were spent in San Francisco for the Everett Pulp & Paper Co., known in recent years as the Simpson Paper Co. Division, Simpson Lee Paper Co.

Celotex Names Rogers Director of Engineering

Charles N. Rogers, former head of engineering for the Sonoco Products Co. of Hartsville, S. C., has been appointed director of engineering for The Celotex Corp. The appointment was effective December 1, 1960.

Mr. Rogers was named to take over the position vacated last April by George H. Burt, who was promoted to technical consultant to the vice president-operations. The new director of engineering will be in charge of all engineering functions in the corporation, reporting directly to I. K. Keran, vice president-operations. He will headquarter in the firm's general offices in Chicago.

Mr. Rogers graduated from North Carolina State University in 1935 with honors and degrees in mechanical engineering and electrical engineering. After two years with the Carolina Power and Light Co. in Raleigh, N. C., he joined the Sonoco Products Co., maker of wood fiber products for industry.

During his 23 years with Sonoco, Mr. Rogers worked as paper mill engineer, pulp plant superintendent, and, in 1947, was named head of the company's general engineering department. This position included responsibility for paper mill engineering, mechanical engineering, electrical, engineering, chemical engineering and construction, with supervision over 50 employees.

Ulm Joins Potlatch As Asst. Technical Director

R. W. K. Ulm has joined Potlatch Forests, Inc., as assistant technical director.

Dr. Ulm was employed by the Container Corp. of America at Philadelphia from 1937 to 1940. From 1940 to 1948 he has been with Ohio Boxboard Co., at Rittman, Ohio; and since 1948 he was with Fiberboard

"Boy, how this BIRD-JONSSON Screen puts through the stock!"
"Yep. A hundred tons a day"
"And at .85% consistency"
"That means 1750 gallons per minute"
"And to think it needs only 16 square feet of 1/4" perforate plate screening area"

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BIRD-JONSSON SCREENS

Paper Products, advancing from research chemist to manager of the paperboard plant at Antioch, Calif. His primary responsibilities at Potlatch will be in the field of quality control and paperboard research.

Hoskins Joins Manistique Pulp & Paper

Orson T. Hoskins of Chicago has been appointed Sales and Service Manager of The Manistique Pulp & Paper Co. of Manistique, Mich.

Mr. Hoskins has been traffic manager of the newsprint department, Newspaper Division of Field Enterprises, Inc., since 1956. He has spent his entire career in the paper business. After 10 years with the International Paper Sales Co. he founded his own business, the Hoskins Paper Co., as a paper merchant and converter, in 1946. In 1951, he joined Bulkley-Dunton Co., New York paper merchants.

OBITUARIES

William J. Dial, 72, former superintendent of Central Paper Mill, died on December 6.

Mr. Dial was mill superintendent for Central Paper from 1935 until his retirement a few years ago.

Mr. Dial started in the paper business as a cutter in 1905 with the Mead Pulp and Paper Co. of Dayton. He was subsequently with the Levis Paper Co. of Dayton, the Sorg Paper Co. of Middletown, Ohio, the Crocker-Burbank Paper Co. of Fitchburg, Miss., and Champion Paper Co. of Canton, Ohio, before joining Central Paper Co.

K. B. Lanpher, plant engineer, Gilman Paper Co., died on December 3. Mr. Lanpher came to Gilman in November 1922. He was appointed plant engineer in 1950.

Charles E. Radley, 69, vice president of Columbia Box Board Mills, Inc., of Chatham and Walloomsac, N. Y., died December 3 at Columbia Memorial Hospital, Hudson, after a long illness.

Mr. Radley started in the papermaking business at the age of 14 in Carthage. After working at Oswego and Utica, he joined the Columbia Box Board Mills, as machine tender and rose to general superintendent in 1939 and vice president in 1945.

PJT NEWS OF CONVERTERS

Ozalid Announces New Texas Plant

A new Ozalid manufacturing plant to be located in the Dallas-Fort Worth, Tex. area has been announced.

The proposed new Ozalid plant, to be in operation by mid-December, will be devoted exclusively to the coating and converting of sensitized materials.

The new plant which contains a dye kitchen, paper testing facilities, coating, cutting, folding and other converting equipment is located in the new Westport Industrial Park.

The acquisition of the Texas plant is one of several major announcements of expansion of facilities and product line made by the Ozalid Division in the past few weeks. The most recent news was Ozalid's entry into the moist developing diazo whiteprint field with an extensive line of machines and materials which caused the company to emerge as the leading supplier in the whiteprint industry.

The Ozalid Division also has manufacturing plants in Johnson City and Vestal, N. Y.; Detroit, Mich.; and LaHabra, Calif.

Set-Up Box Symposium Scheduled for March

"Finding Hidden Profits in Set-Up Boxes — A Symposium," sponsored jointly by Packaging Institute and the National Paper Box Manufacturers Assn., will be held at the Sheraton Hotel in Philadelphia on March 31.

The all-day meeting will highlight the use of set-up boxes in the packaging industry. Speakers will represent both box manufacturers and users and will discuss both the economic and technical aspects of set-up box packaging.

Present plans call for a morning session devoted to the presentation of papers followed by an afternoon panel discussion. The registration fees for the one-day meeting will be $10 for the members of either association and $15 for non-members. This includes the official luncheon.

This symposium is one of several Packaging Institute will sponsor in future months in cooperation with other associations. PI's program plans for 1961 also include at least four regional meetings to be held in the West, Midwest, East, and South.

Additional program details for the Set-Up Box Symposium will be announced shortly.

Dixie Cup Sales Mgrs. Assigned New Posts

Three territorial sales managers of the Dixie Cup Division of American Can Co. have been moved into

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W. FRED DOLPE, A.I.A., ARCHITECT & ENGINEER

NEW RESEARCH AND DEVELOPMENT CENTER, two miles from the main plant of Beloit Iron Works, at Beloit, Wisconsin, will provide 45,000 square feet of modern plant and facilities for "paperesearch." Now under construction, the Center will be completed early in the second quarter of 1961. More efficient machines, better paper, new economies—these are key items in Beloit's continuing research and development program.

BELOIT IRON WORKS · PAPER MACHINERY · BELOIT, WIS., U.S.A.

Easton to take over broader sales responsibilities.

George Brown, former manager in Boston, becomes national sales manager for public feeding. Mr. Brown has been with Dixie Cup since 1947.

James Sturm, most recently in Detroit, has been named assistant to the sales vice president in charge of service products. He has been with the Dixie Cup Division almost eight years.

Louis Heintz, who was territorial sales manager in New Orleans, becomes assistant institutional sales manager. He has been with the company since 1951.

Sandusky Folding Box Firm Sold

The Sandusky Folding Box Co., Sandusky, Ohio, has been sold to the United Board and Carton Co., 2 Park Ave., New York City.

J. M. Henry, president of the concern, will become general manager of the Sandusky division and vice president of the parent corporation.

Operations will be carried on unchanged. The plant produces several types of folding cartons and plans for a substantial future expansion are in the works.

The concern's parent firm has a box board mill in Uebana, Ohio, and several other plants in the east.

CCA Announces Changes In Sales Management Posts

Frederic D. Empkie has been named sales manager, national accounts-midwest, for Container Corp. of America's folding carton division.

Succeeding Mr. Empkie as general sales manager of the Chicago folding carton division is William E. Mastbaum, formerly sales manager of the company's Solon, Ohio, folding carton plant. Both men will be headquartered at the company's 35th Street carton plant, Chicago.

In his new post, Mr. Empkie will report to E. F. Bickley, Jr., general manager, national account sales. He will coordinate and direct the sales efforts of the company's folding carton division toward national account dry carton customers in the Midwest.

George A. Sedlock and Donald E. Coburn have been named sales manager and assistant sales manager, respectively, of containers, Solon, Ohio, folding carton plant.

In his new post, Mr. Sedlock succeeds William A. Mastbaum. Mr. Coburn, a packaging engineer since 1957, takes over Mr. Sedlock's former post as assistant sales manager at Solon.

C. G. Francke

Francke Becomes Manager Of Standard Packaging Div.

Standard Packaging Corp., has announced that C. G. Francke has been appointed division manager of the corporation's Gebhart Folding Box Division. Mr. Francke will make his headquarters at the plant's offices in Dayton, Ohio.

For the past few years, the Gebhart operation had been combined with that of the Bradley & Gilbert Folding Box Division in Louisville, Ky. However, due to an increase in sales volume and additional workloads at both plants, they will now operate as separate divisions.

Mr. Francke joined Standard Packaging in February, 1960, serving as resident manager of the Gebhart Division. Before coming to Standard, he was vice president of the Old Dominion Folding Box Division of Weyerhaeuser Co., and had been president of the Franklin Folding Box Co. of Chicago, Ill.

Weyerhaeuser Will Build Alabama Plant in '61

Weyerhaeuser Co. has announced that it will build a plant in Alabama's Muscle Shoals area next year for the manufacture of corrugated shipping containers.

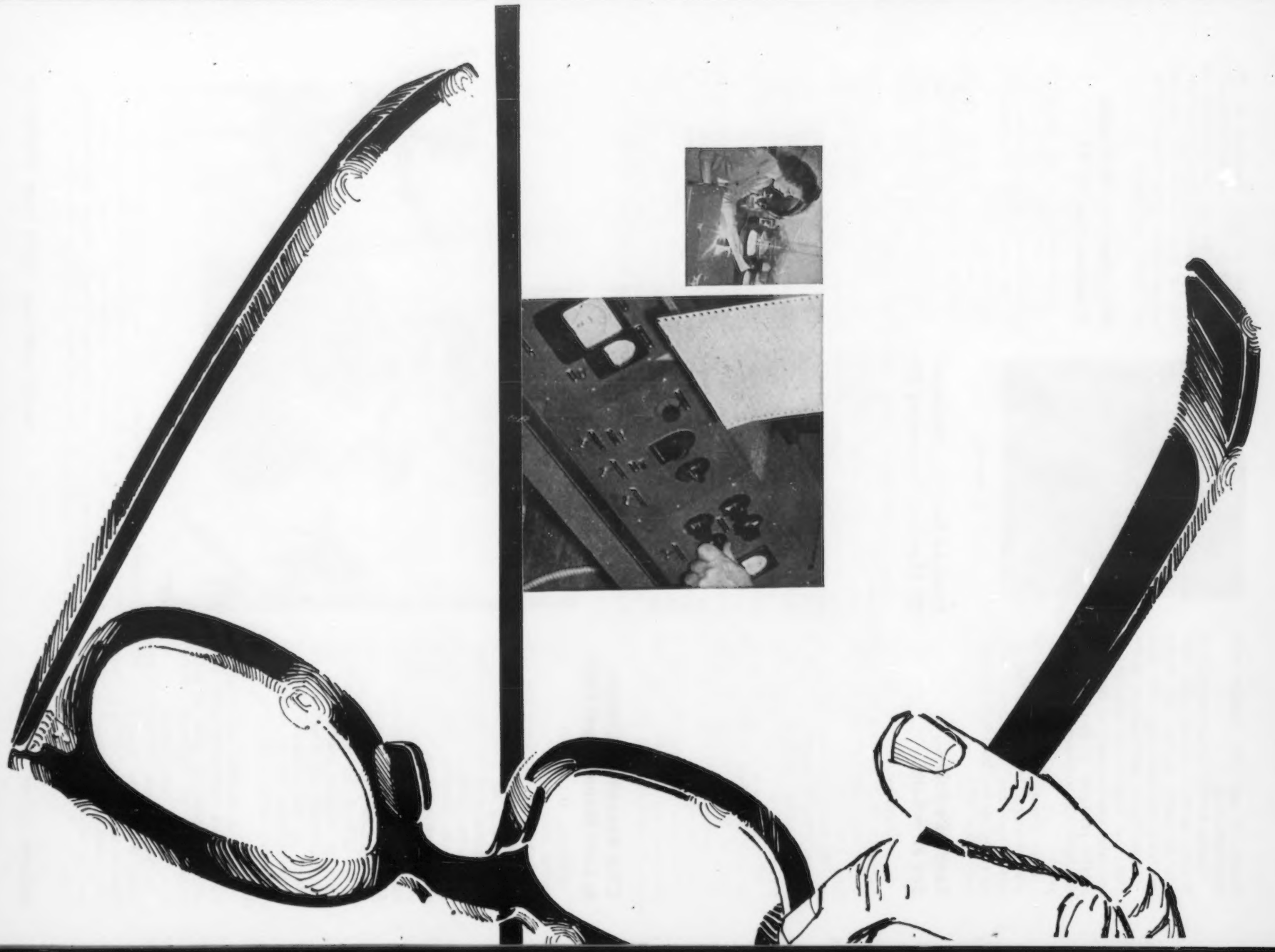
Construction at Florence, Ala., is expected to be started about April 1 and completed in the fall of 1961. Operations with an initial floor space of 57,000 square feet will require about 30 employees.

W. G. Karran, former general manager of the Chattanooga, Tenn., plant of Container Corp. of America, was named resident manager.

Weyerhaeuser operates 22 shipping container manufacturing plants in 17 states and is building additional facilities at Olympia and at Cloquet, Minn.

The Florence plant will manufacture shipping containers from kraft linerboard produced by a Weyerhaeuser pulp and paper mill at Plymouth, N. C. The new plant will serve markets in Alabama, Tennessee, Mississippi and Georgia.

GUISEPPE BAGGI, outstanding paper sculpturist, here demonstrates only one form of his art. Mr. Baggi is probably the world's foremost expert in paper sculpture. He is available for demonstration at conventions as well as for preparation of art work for sales promotion pieces and advertising. His address is Hotel Stanford, 43 West 32nd Street, New York 1, N. Y.



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Take all possible care to control the quality of chlorine and caustic up to the point of shipment. Follow proper loading procedures to the letter. Then go one step further . . .

At Wyandotte, this means putting a sample from each tank-car shipment of chlorine or caustic through a battery of exacting tests, as a "security" clearance.

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Dependable quality is a point of pride at Wyandotte. So is dependable service. Significantly, both of our chlorine-caustic plants are on major waterways to gain the advantage of low-cost water transportation. At Geismar, in the South, we are on the Mississippi . . . and close to the Gulf. At Wyandotte, in the North, we are on the Detroit River, and have direct access to the Great Lakes and the St. Lawrence Seaway. Railways and highways also go out from these two plants to four-fifths of the productive capacity of the U.S. and Canada.

The benefits to users of Wyandotte Chlorine and Wyandotte Caustic in its many forms are plain. We can ship economically and with dispatch . . . by barge or ocean tanker, truck or tank car. May we discuss the possibilities with you? *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

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Few pumps are so adaptable to so many jobs. For capacities from 5 to 1200 gpm, they are the answer from clear water supply to handling an acid solution. High-speed ball bearing design often means selection of a smaller size for a given volume. Durable overall construction means low costs over the long pull, too. Write today for Bulletin 976 and see how profitably you can put these almost universal pumps to work!

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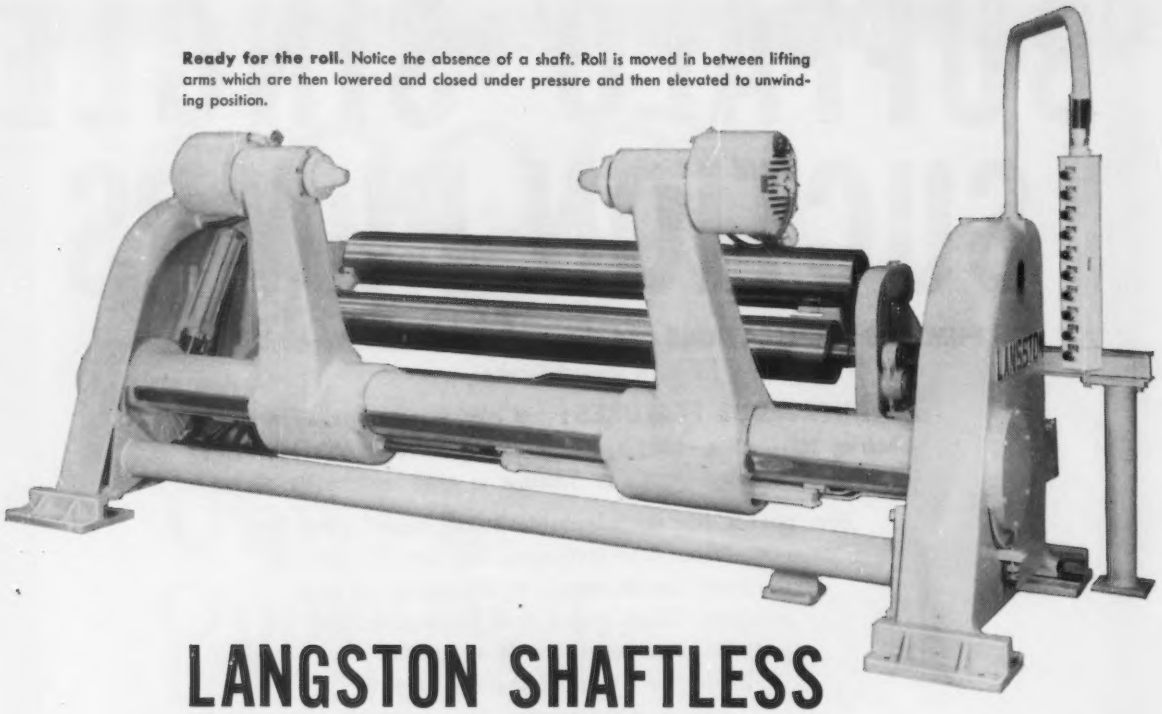
Squier machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

Ready for the roll. Notice the absence of a shaft. Roll is moved in between lifting arms which are then lowered and closed under pressure and then elevated to unwinding position.



LANGSTON SHAFTLESS UNWIND STAND

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Easy, fast, completely safe. One man does everything. Operating pushbutton controls, he closes lifting arms, elevates roll, sets brakes.

One man can load the heaviest roll. No heavy shaft to handle. No cone tightening. No couplings to engage. No crane lifting. Just pushbuttons. This is the Langston standard shaftless unwind stand for rewinding and converting applications.

You not only save time, you also get better unwinding. Roll can be positioned laterally by pushbutton control—even when the machine is running. It's held firmly under pressure for complete safety throughout the unwind. Several braking arrangements can be provided to handle a wide range of grades and conditions. Available extras provide for handling very narrow rolls; for constant tensioning; for automatic braking of idler rolls; for automatic web alignment and side register control; for web oscillation; and for local or remote control.

This new Langston shaftless unwind stand can be used with any make of slitter. Available for maximum roll widths from 36 to 140 in. and diameters from 14 to 84 in. For complete information, write Samuel M. Langston Co., Camden 4, N. J.

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LANGSTON *Leadership...by design*

WETstrez is RCI's new name for a group of highly efficient wet strength resins — formerly RCI BECKAMINE — that have years of proven performance in the paper industry.

Take WETstrez P-841-30. This modified urea-formaldehyde resin is specially tailored for use with deciduous wood pulps. WETstrez P-841 imparts wet strength, increases Mullen and dry tensile strengths, and aids in the retention of clay, starch and other beater additives.

Or, WETstrez P-682-35, another modified U-F resin. It is designed for optimum performance with coniferous wood pulps. In either product, the name WETstrez means more wet strength per dollar!

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Why paper men are EXCITED about KOFILMS®

KOFILMS are breaking every record for starch performance in sizing and coatings. They are acetate ester derivatives of corn starch in which acetyl groups have been chemically substituted on the starch molecule. These functional acetyl groups impart new standards for flow, filming, strength, oil and grease resistance, viscosity stability and flexibility.

FOR SURFACE SIZING. Kofilms are applied at the size press or calender stack. They improve strength, printability, smoothness, surface flexibility, pigment binding, oil and wax holdout and other properties. They also offer better quality control and cleaner operation.

FOR COATINGS. Kofilms provide paper and paperboard coatings with high binding strength regardless of application method. A smooth level coating is assured by uniform flow properties. Increasing use reflects the demand for smoother sheets with high pick resistance and improved printability.

UNMATCHED COMPATIBILITY. Kofilms are compatible with many materials commonly used for special surface sizing and coating formulations: silicones for release properties for pressure sensitive or sticky substances; polyvinyl alcohol for improved grease, wax and oil holdout; resin components for superior coated surfaces. Similar synergistic effects are obtained with CMC, sodium alginates, and other materials.

KOFILMS size and coat an endless variety of paper products. Different viscosity grades can be selected to improve specific properties—as you can see in the actual mill results at right. Why not investigate Kofilms? We'd be glad to help. Just contact your nearest National office.

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ACTUAL MILL RESULTS

#1 MILL EVALUATION— BLEACHED KRAFT FOOD CONTAINER STOCK

Two production runs were made on a 100% bleached kraft food container stock: one with Kofilm 50 and the other with a starch derivative of equivalent viscosity. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 120 secs (Microamps)	WAX PICK	POROSITY READING
Starch derivative	6.0	87	18	250
Kofilm 50	6.0	91	20	300

Higher Vanceometer and porosity readings demonstrate the excellent filming properties and resistance to oil penetration of Kofilms. Subsequent waxing showed that the Kofilm-sized board also had a significantly higher wax holdout.

#2 MILL EVALUATION— OFFSET GRADE

Two production runs were made on a 64 pound offset cover stock (20 x 26-500): one with Kofilm 80 and the other with a low viscosity oxidized starch. In this evaluation Kofilm 80 was employed at a solids content equivalent to that of the oxidized starch. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	WAX PICK	MULLEN	OPACITY	TEAR
Oxidized starch	14	14 to 16	60 to 67	0.95 to 0.96	220 to 230
Kofilm 80	14	16 to 18	64 to 70	0.96 to 0.97	240 to 260

The increase in opacity and tear with Kofilm 80 indicates less starch pickup although equivalent solids were used. When the concentration of the Kofilm 80 size was reduced to 12%, pick tests averaged 16. Actual printing tests of the paper also showed a significant improvement in the degree and uniformity of ink holdout.

#3 MILL EVALUATION— GREASEPROOF GRADE

Using an experimental paper machine size press, Kofilm 80 was run against an oxidized starch of equivalent viscosity on a one-side-sized greaseproof base sheet. Comparative flexibility and grease resistance were determined with a double fold turpentine test conforming to TAPPI Standard T-485 m 53. The sheet was uncalendered prior to testing.

CONCENTRATION %	OXIDIZED STARCH TURPENTINE PENETRATION, secs	KOFILM 80 TURPENTINE PENETRATION, secs
4.0	40	75
6.0	60	415
8.0	200	860

The markedly higher resistance to turpentine penetration obtained with Kofilm 80 on the severe double fold is attributed to the hydrophilic nature and superior flexibility of the starch acetate structure.

#4 MILL EVALUATION— VAT-LINED BOX BOARD

Two production runs were made on a vat-lined boxboard grade at the calender stack: one with Kofilm 50 and the other with a starch derivative at 25% higher solids. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 60 secs (Microamps)	WAX PICK
Starch derivative	10	70	14
Kofilm 50	8	80	14

Even at a lower solids content, tough Kofilms exhibit higher oil resistance and comparable pick.

#5 MILL EVALUATION— KRAFT LINER BOARD

Two production runs were made on a 42 pound kraft liner stock at the calender stack; one with Kofilm 50 and the other with low viscosity oxidized starch of equivalent concentration. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 20 secs (Microamps)	MULLEN	SCUFF
Water	0	15	105	100
Oxidized starch	6	45	110	140
Kofilm 50	6	52	110	150

The tough, hydrophilic film properties of Kofilm clearly demonstrate superior oil resistance and strength.

#6 MILL EVALUATION— EFFECTS OF REDUCED COATING WEIGHT ON ROLL-COATED LETTERPRESS PAPER

A coating was applied on a 28 pound letterpress base stock with a roll coater, using a 3 to 1 mixture of Kofilm 80 and Kofilm 50. The mill compared results with paper produced by their standard enzyme converted binder system. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

COMPONENTS AND DATA	KOFILM	ENZYME CONVERTED CORN STARCH
Coating clay, parts	100	100
Starch, parts	12	16
Calcium stearate, parts	1	1
Solids, %	55	62
pH-adjusted with caustic	8.5	8.6
Viscosity, cps Brookfield 20 rpm	5000	4500
Coat weight per side/ream basis, lbs.	4.5	6.0
Wax pick	6	5
Opacity	92.3	93.0
Show-through resistance	good	good
Ink gloss	88	87

Both formulations were of equal cost. In the Kofilm formulation the coating weight was reduced by 25% without loss of quality. The mill commented that Kofilms showed greater ease of formulation and superior machinability.

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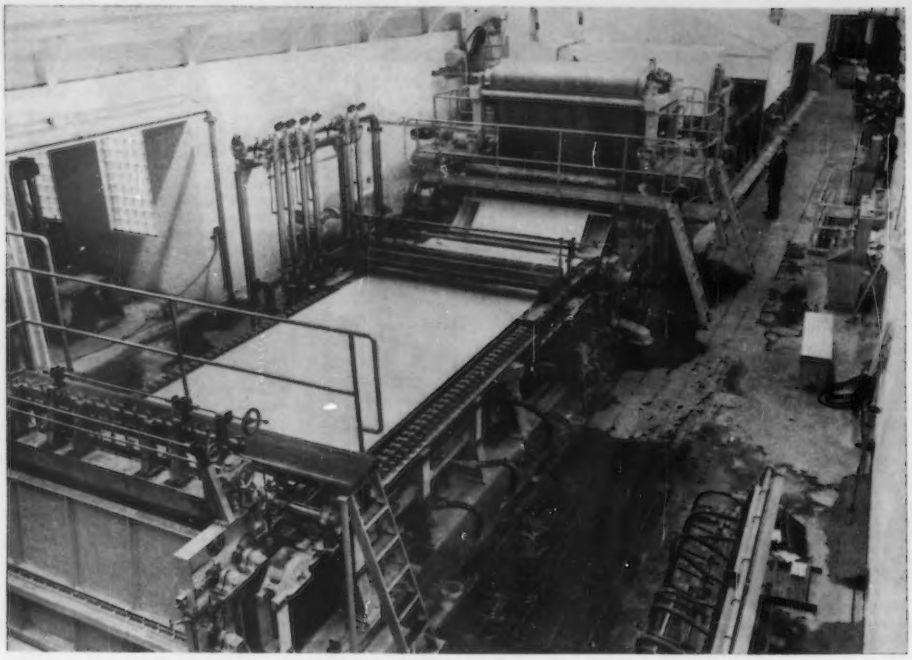


First all new fine paper machine in many years for production of cotton fiber content papers.

Make Way for Byron Weston's New Fine Paper Machine

Production of cotton fiber content paper gets a boost at this near century old paper mill with installation of versatile, highly instrumented stock preparation and papermaking equipment.

Paul D. Van Derveer,
Associate Editor,
Paper Trade Journal

Pulp in 2,000 lb. batches is charged to pulper as operator controls conveyor from instrument panel.

The first all new fine paper machine in many years for the production of cotton fiber content papers was just started up at Byron Weston Co., in Dalton, Mass. This near century old firm is keeping right up to the minute with the installation of a highly instrumented stock preparation system and a completely modern, versatile, 107-inch fourdrinier machine.

The new Rice-Barton machine replaces an older paper machine, and is designed to make cotton fiber content index, ledger papers, and specialties. Designated as No. 1, the new machine is designed to produce up to 25 tons per day in a range of basis weights from 13 to 82 lbs. substance (17 x 22-500). It is designed for a wide range of speeds, being capable of 50 to 500 f.p.m.

In an interview with Fritz S. Klein, mill superintendent, some of the capabilities of the new machine were summarized. "We expect that it will give us increased production," he commented to PAPER TRADE JOURNAL, "and by virtue of its high degree of instrumentation and modern equipment, will give improved quality and provide a wide range of grades."

Modernization Program

Through the years, Byron Weston has concentrated exclusively on the manufacture of fine cotton fiber content papers and have carried out a continuing series of modernization and improvement programs. The startup of its new paper machine culminated the most recent modernization program which began in the fall of last year with installation of stock preparation equipment. During the winter rebuilding and remodeling of the machine room got underway and continued stepwise to its completion in July of this year. In July, too, the old machine, known as No. 3, was ripped out and installation of the new paper machine begun. Throughout the project, actual construction was supervised by Irving Witham, chief engineer and Orland Blanchard, machine supervisor.

The designation of the new machine as No. 1 is apparently a realignment of the firm's numbering system since it replaced No. 3. The company at one time had a No. 1 machine, but it has long since been dismantled. At one time, too, there were two separate mills on this site, but they were connected in 1948 by construction of a building to house all Byron Weston's finishing operations. Now, all the firm's papermaking facilities are located in the part of the plant that was known as the Centennial Mill, while the power plant, warehouse and shipping operations are in the old Defiance Mill. Papermaking operations began at this site in 1863.

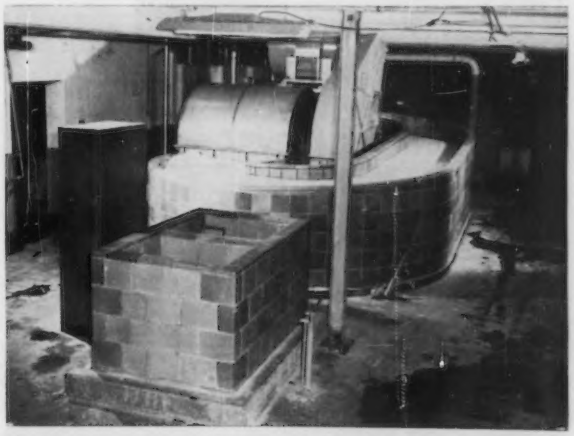
Hi-Lo pulper solves problem of low head room (approx. 8 ft.). It is used to slush a variety of pulps which are first broken up by a low speed rotor, then fiberized by a high-speed rotor. Constructed of low pH, high temperature tile, the tank will handle up to 35 tons per day. Batch is discharged by air operated dump valve.

Besides the new machine, Byron Weston has a second paper machine, No. 2, producing bond papers and some ledger papers. Rebuilt in 1948, it is a 112-inch wide machine capable of producing 13 lbs. to 36 lb. substance (17 x 22-500) paper at a maximum rate of 30 tons per day. The firm also has a wet machine which is used to make cotton fiber pulp into lap form. The pulp, made from new cotton clippings which are first sorted, cooked, then washed and bleached, is stored at about 50 - 60 per cent moisture for use in the preparation of furnish for the paper machines.

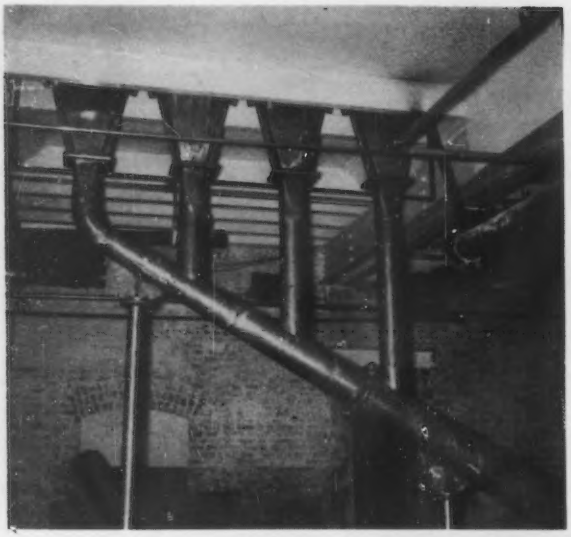
Preparing Various Pulps

Byron Weston's fine papers vary in cotton fiber content depending on the grade and end use. One type, known as Blackstone Ledger, combines cotton fiber quality with toughness and serviceability. It has a 25 per cent cotton fiber content. Their Byron Weston Co. Linen Record is an extra No. 1 grade, available in several

Stock is subjected to initial development in pre-beater. Unit is equipped with conventional medium weight roll having normally spaced bars. High roll pressure is obtained by using narrow bedplate. These conditions allow unit to do rather fast initial fiber development job. Pre-beater has 2,000 lb. capacity at 6%. Cycle is controlled automatically.



Final development work is done on stock in Bertrams beater. In this package unit the roll bars are closer than that of the pre-beater; hence tend to brush and fibrillate the stock. The Bertrams beater discharges directly to the beater chest; however, in some cases both this, and the pre-beater, may be by-passed so that stock goes directly to the beater chest.



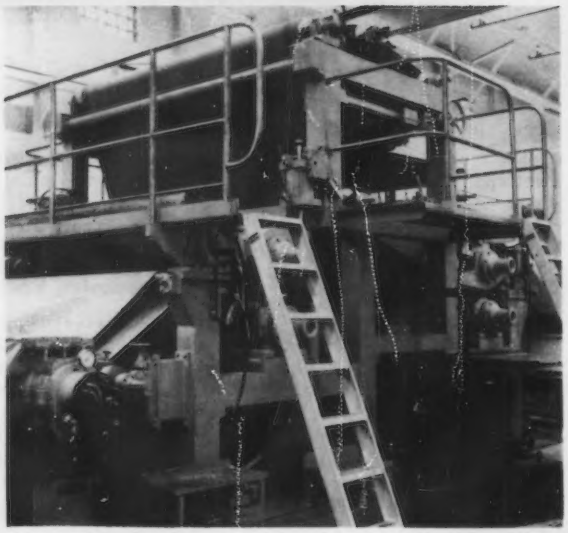
Flow distributors to headbox are, like the headbox itself, specially designed to handle Byron Weston's grades and stocks.

colors, containing 100 per cent cotton fiber. They have a similar wide range of quality, color and substance throughout their line of fine papers, and in order to meet the demand for the various grades several other types of pulp are stored in a modern pulp storage building. Bleached kraft, bleached sulphite, hardwood pulp, and cotton linter pulps are stored here.

The above pulps are transported by fork truck to a conveyor from which they are charged to an E. D. Jones Hi-Lo pulper. The conveyor is 60 inches wide by 27-feet long and is capable of holding two charges. It is operated by remote control from an adjacent instrument panel. The pulper, with a capacity of 2000 lbs. at 7 per cent consistency, has a tile chest with stainless steel agitators.

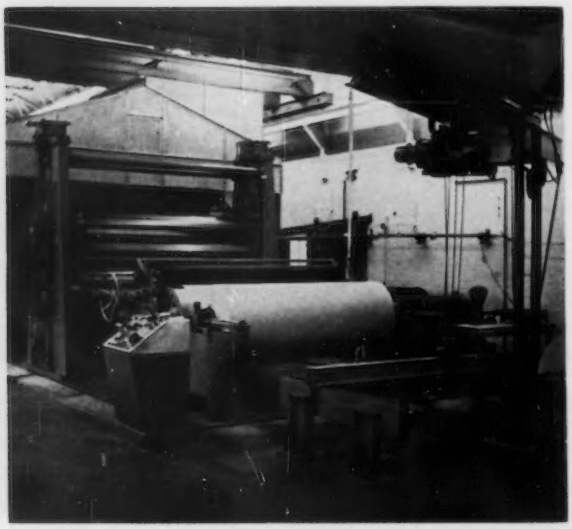
Other equipment in the stock preparation area includes a prebeater and a Bertrams beater, both supplied by E. D. Jones. From the pulper, stock may be pumped to the pre-beater or directly to the chest below the Bertrams beater. Normally, the stock is pumped to the pre-beater for a pretreatment period. Powered by a 250 h.p. motor, the pre-beater has a 2000 lb. capacity at 6 per cent. The beater cycle is controlled automatically with Taylor instrumentation. The pretreated stock may be pumped from this point to either the Bertrams beater or beater chest.

The stock is treated in the Bertrams beater at five per cent consistency for a period ranging from 60 to 120 minutes in order to reduce fiber length or to hydrate the stock. A 400 h.p. motor drives the beater's



Press section of the new Rice Barton machine consists of one straight through press and one reverse press.

First calender stack (seven rolls) is located between first and second dryer sections. It is followed by the vertical size press shown in the foreground.



Dry end of machine. Jib crane overhead is used to move reels to winder backstand or can be utilized to swing the reel through 90° arc to future cutter.

20 ton, concrete filled roll. The beating cycle is automatically controlled with Foxboro equipment. The beater discharges directly to a chest below.

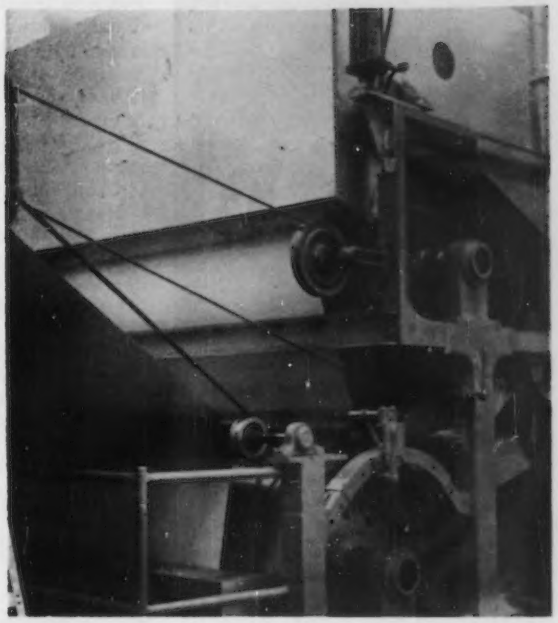
Automation Tempered by Art

The beater chest and a machine chest to which the stock is next pumped are located side by side in the basement and are identical, each having a capacity of 5000 lbs. at 3 per cent. They are both tiled and are horizontally agitated with two Jones agitators in each chest. Level is maintained in the machine chest by an automatic level control system which calls for more stock to be pumped from the beater chest as required. The system can be manually controlled, however, by the stock preparation operator or the machine tender when the need arises.

As a matter of fact, an important point to be noted here is that much of the system is automatically controlled, for instance beater cycles and the above mentioned level control. However, in every case the instrumentation can be overridden by the operators. The Byron Weston operators have many years of experience to back them up, and since papermaking is still more art than science, their assessment of stock condition is still the final authority.

From the machine chest, stock is pumped to the machine through a Bird consistency regulator performing double duty. It controls consistency to the machine, and the regulator overflow returns to the machine chest to control consistency there. After regulation to 1 - 3 per cent, the stock flows to a pair of No. 1 Jones jordans and then through the stock gate to the 1200 g.p.m., 140 feet head fan pump. White water is added here reducing the consistency to a range of 0.3 to 1 per cent. The pump provides pressure to transport the stock to a battery of Bauer 606 Centricleaners, then to a Black-Clawson 24P Selectifier screen and direct to the headbox. The Centricleaners are arranged so that there are 10 primaries, two secondaries and one tertiary.

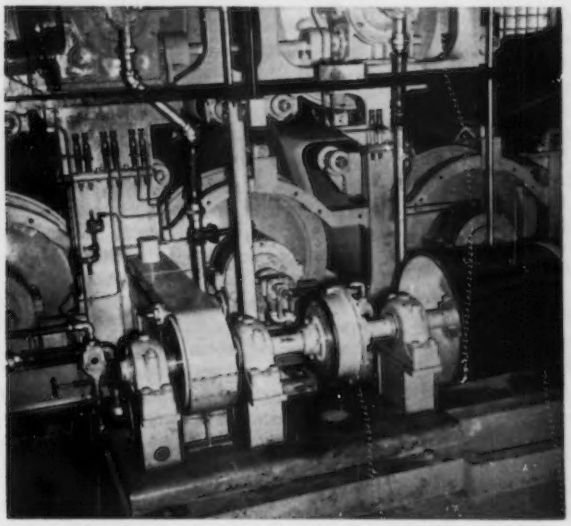
With the aim of producing very high quality papers, Byron Weston's stock preparation system is designed for extreme cleanliness, for corrosion resistance and freedom from contamination. The tile used throughout the system is chemically grouted for normal pH conditions. The paper machine headbox and entire wet end, is constructed of stainless steel.



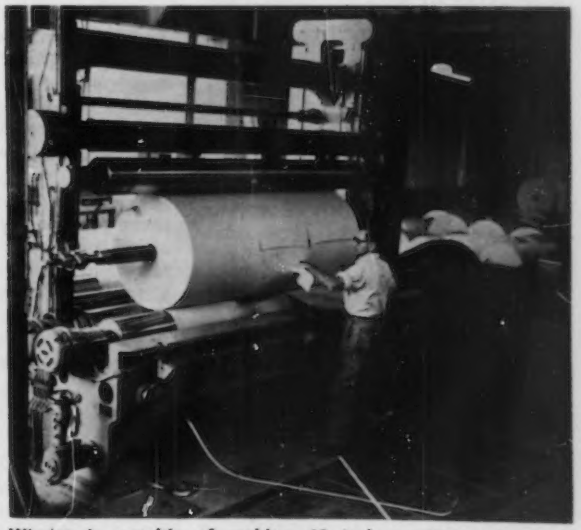
Pre-dryer section follows the press section and consists of two gas-fired R-B Gardner dryers, used to increase drying capacity.

Versatile New Fine Paper Machine Specially Designed

The new paper machine is interesting for several reasons aside from the fact that it is the first all new machine to be installed for the production of fine cotton fiber content papers in many years. It is equipped with two Gardner pre-dryers to in-



Drive side of second dryer section. Dryer cylinders are connected by worm gearing within the section.



Winder is capable of making 42 inch maximum diameter roll, has top speed of 2,000 f.p.m.

T. J. Fahey, general manager, and A. J. Sottung, advertising manager, inspect sheet from new machine.

crease drying capacity and has a modern drive system with dryer drums connected by worm gearing rather than the old style exposed toothed gears. It is also extremely versatile and has a wide range of speeds.

The headbox was, like the rest of the machine, built by Rice-Barton. It is specially designed for Byron Weston's grades and stocks and has two adjustable slices. The primary slice is a curved type while the secondary slice is a straight type. The wire is 107 inches wide and 60 feet 7 inches long. It is expected to trim up to 96 inches. The machine is equipped with ruler deckles and shake mechanism. The breast roll is 16 inches in diameter. There are 39 hard rubber covered table rolls and six stationary suction boxes. Four boxes are located ahead of the dandy roll, two after. Vacuum is controlled through a Broughton system. There is a total of six wire return rolls with one Gilbert and Nash automatic guide roll, a hand guide and a stretcher roll. The machine is also equipped with a Sinclair dandy stand, designed to be driven, and a Beloit suction couch.

There are two presses preceding the pre-dryer section, one a straight through type, the other a reverse press. Both presses have the same size rolls, the top being of 18-inch diameter, the bottom 20-inch. Face is 108 inches. Immediately behind the first two presses is a pre-dryer section consisting of two gas fired Gardner dryers.

Two Calender Stacks

There are two dryer sections, each covered by an open type hood with exhaust blowers and each containing four-foot diameter dryers. Each of the two sections is equipped with a Foxboro moisture controller. Immediately behind the first dryer section is located a seven roll calender stack. Equipped for air loading and lifting, it has a 22-inch bottom roll, 12 inch intermediates and an 18-inch top roll. The calender is followed by a vertical size press with an 18-inch top roll and 20-inch bottom roll.

Next comes the second dryer section, and this is followed by another calender. This is a five roll stack and like the first calender is made by B. F. Perkins. The rolls are the same size in both calenders, and both stacks have provisions for adding more rolls. The last calender stack is followed by a horizontal reel capable of making a maximum 42-inch diameter roll.

The machine is also equipped with an Accuray basis weight controller. Lubrication is provided by a Bowser pressure system. Intake air for the machine room is filtered and heated

Fritz S. Klein, mill superintendent, inspects sheet at size press with Orland Blanchard, machine supervisor.

in winter, cooled in summer. There are four Nash vacuum pumps. The largest of 75 h.p. is for the suction couch and flat boxes; two 15 h.p. pumps supply vacuum requirements of the felt conditioners; and one 3 h.p. pump handles the vacuum reject system on the stock cleaners.

A jib crane has been installed to move reels of paper to a winder backstand, or it can be utilized to swing the reel through a 90° arc to a future Clark-Aiken cutter. The winder is an S. M. Langston model CA 102 capable of a maximum diameter roll of 42 inches. Powered by a Westinghouse AV drive, it has a top speed of 2000 f.p.m.

Modern Drive

The paper machine is powered by a motor generator set supplying current to a 75 h.p. variable speed d.c. motor. This drives a lineshaft located

Irving Witham, chief engineer, discusses problem with member of maintenance crew.

in the basement from which each section is driven with Coriamid belting through cone pulleys and Falk Air Flex clutches. These drive Rice-Barton right angle hypoid gear units through Dodge Paraflex couplings and a floating shaft to each section. Dryer cylinders in each section are connected by Cleveland worm gearing. Machine components that are driven include: suction couch, first press, second press, first dryer section, first calender, size press, second dryer section, second calender and reel. (At the company's request, two driven components are not included in this list.)

The machine's white water system is so arranged that water removed by the table rolls is isolated and is used to supply the fan pump with make-up water while the excess goes to a tile lined pit under the wire along with shower water from the wire return rolls.

When the machine is in operation, trim goes to a stainless steel saveall chest beneath the couch roll. A portion of the white water is used to dilute the stock in the saveall chest while the rest goes to the white water reclaiming box. Under startup conditions the full width of the sheet drops into the saveall chest and most of the white water is used for dilution of this stock. This is pumped to a Bird saveall and the stock is returned to the machine chest.

The white water reclaiming box is much like a proportioning box where the flow of reclaimed white water and fresh well water coming into the system can be regulated to a pump which feeds all showers and provides make-up water for the stock cleaning system. The reclaiming box has been designed with an aim towards using this water in loading the beaters and to control the flow of excess water to a pump for solids removal.

Tall Oil Fatty Acid Production Has Zoomed

Experts review developments and outlook in tall oil chemical production and utilization.

In 15 years, the production of tall oil fatty acids, a whole new class of pulp chemicals derived from a paper industry by-product, "has zoomed from practically nothing to a current annual rate of 150 million pounds." This statement by a speaker at a panel of representatives of the Pulp Chemicals Ass'n. discussing "Tall Oil Products in the Markets of the 60's" recently, brings into sharp focus the establishment of virtually a new American industry.

That this industry will have no major immediate competition from either the Free World or Satellite Nations was noted by another speaker who stated that European production of crude tall oil fatty acids is less than 20 per cent of the U. S. production. Conversely in the international scene, the U. S. export picture of these products seems to be expanding in the near future for the requirement of special tall oil fatty acids in Europe and other export areas.

Panel Members

The speakers on this panel representing the Pulp Chemicals Ass'n. spoke before a meeting of the Northeast Section of the American Oil Chemists' Society. They were: J. M. Wafer, vice president, West Virginia Pulp and Paper; J. H. Ruskin, president, Arizona Chemical Co.; C. W. Eurenius, assistant general manager, Paper Makers Chemical Dept., Hercules Powder Co., Inc.; and D. R. Eagleson, assistant sales manager, Emery Industries, Inc. The panel was moderated by D. E. Campbell, secretary of the Pulp Chemicals Ass'n.

The panel spotlighted various markets now consuming the vast amount of tall oil fatty acids produced in the U. S. The first major market for the consumption of these materials is the paint, varnish, lacquer and coating field. Tall oil fatty acids are being used increasingly in this field because of the combination of low cost and superior paint properties imparted for various household appliances finishes.

Another growing market for tall oil fatty acids is in the soap, emulsifier and synthetic detergent field. In the past few years the advent of household pine cleaners has caused a sharp increase in the usage of these materials.

Surface Coatings Big

At present the surface coatings field, principally alkyd resins used in these coatings, consumes approximately 30 to 40 million pounds of tall oil fatty acids. A competing material in this field, soybean oil, is used at the rate of 100 million pounds. The current price picture, however, according to the panel supports greater usage by the newcomer for some time to come, since current price levels make tall oil fatty acids extremely competitive with soybean oil.

Other products yielded in tall oil fatty acid production, the panel pointed out, should also have wider industrial use because of the economy they impart. "Heads" fractions, for example, now sell at about two cents per pound, are presently used as flotation reagents in the mining field and in core oil manufacture for the foundry industry. Pitch, a high boiling residue, is also at a market low, presently selling for 1¼ cents per pound. Only about half or less of the pitch produced today is finding use, but should prove useful in making low cost resinous products.

In standard soap products tall oil fatty acids are historically competitive with traditional fats and oils. In the surface coating field, vegetable fatty acids are already feeling the bite of the newer tall oil fatty acids.

New Uses Found

The panel speakers indicated that there will also be greater domestic increase in the use of these new pulp chemicals for such applications as low temperature rubbers, plasticizers for vinyl products and synthetic detergents. The advent of these materials in greater increasing formulations and grades is also helping to produce newer paints and newer coatings as well as newer plastics. They are being used to a marked degree in the polymerzation of new resins, for example, in the plastics industry.

Export Picture

The panel introduced an encouraging note in the export picture by outlining the potential of tall oil fatty acids in markets abroad. They anticipated that the volume consumption of premium tall oil fatty acids not produced in Europe will rise. However, consumption of crude tall oil, from which these materials are derived, will decrease as it is refined and fractionated in the United States to a broader range of new products.

Also forecast for European production was the start up of newer processes using tall oil fatty acids, and an increase of tall oil fatty acids in foreign synthetic detergents.

Rosin Still a Problem

Despite the overall satisfactory picture of tall oil products in the markets of the 60's, a cautionary note was introduced by another speaker who indicated that the pulp and paper industry could not meet for many years to come the total demand that has existed for gum and wood rosin — traditional naval stores products which have been used increasingly for the past 50 years in many of these industries. The speaker noted that the pulp and paper industry is contributing greatly to the overall production of rosin, but it would appear "that the revival of the gum naval stores industry will be essential to provide the major source of rosin in the future."

MAINTENANCE SERIES
NUMBER 33

How to Plan a Better Bleach Plant Maintenance Program

Individual ventilations systems, Pyrex pipe, Fiberglas, sloping floors, asphalt compounds, design and layout, records and inspections. How do all these tie in to good bleach plant maintenance?

Norman Baldwin,
Sales Engineer,
Kamyr, Inc.,
Hudson Falls, N. Y.

Nowhere in the papermaking scheme does machinery or instrumentation operate under more hazardous exposure than that in the bleach plant. Therefore, it must follow that good bleach plant maintenance should begin during the design stages of the bleach plant.

Maintenance costs will be lower in the mill where space requirements to accommodate major overhauls have been given proper consideration. Sufficient room for good piping layout is essential. Ceilings should be high enough to accommodate monorails to facilitate the installation or removal of the larger machinery components such as the washer drums, exhaust fans and so forth. Floor hatches and wall openings should be provided to permit the lowering or raising of equipment.

Although it may be quite true that the bleach plant structure is secondary to the process equipment it should be made as immune as possible to the corrosive atmosphere of the area. When mild steel is used, care should be exercised in selecting sections and positioning them so that all exposed areas can be easily painted.

Many plastic coatings and asphalt compounds are now available for coating steel to protect it from rust and attack. Such protective coatings should be applied before start-up—not as a part of a future painting program that might never materialize.

Roof decks should be built from solid concrete roof slabs, If lightweight slabs are used they should be sealed with one of the good sealing agents to prevent penetration by contaminating vapors that could attack the reinforcing steel.

Floors should be generously sloped, at least ¼ inch to the foot, and ample trenches should be provided and tile-lined where conditions require.

Exhausting Process Vapors

Proper exhausting of contaminated process vapors has an important bearing on keeping maintenance costs down. Of first importance is providing the washers with hoods designed to remove the escaping gases from the areas as quickly as possible.

Because of the chemicals present in these gasses many materials have been used in this service, including transite, plastic-coated plywood, steel plate painted with corrosion resistant paints and others.

Now Fiberglas is proving to be the most effective of all materials of construction for hoods and duct work. Fiberglas is simple to assemble, easy to repair or cut, easy to clean and because of its light weight it is easy to support. Supporting strength can be provided by using lightweight structural members wrapped and coated with Fiberglas.

In addition to exhausting all washer hoods, exhaust ducts should vent the bleach towers, the chemical preparation areas and the elevator shaft. Exhaust fans should be constructed of whatever material will offer greatest life expectancy dependent upon the particular exposure.

Ventilating Systems

Separate air systems are recommended for each service, i.e., instrument air, chlorine unloading, padding of the chlorine dioxide generator, sulphur dioxide unloading, and others. Where air dryness is a factor, dryness can be insured by frequently alternating and recharging the calcium-chloride dryers and by placing a calcium-chloride dryer in series with an electro-dryer.

Due to the importance of air for general ventilation purposes it is recommended that every floor in the bleach plant be adequately supplied with fresh air. Special air supply ducts should be provided to lead to each washer console and to the main instrument panel.

This titanium casting resists the corrosive effects of chlorine dioxide to which it is exposed as the bonnet of a radial flow mixer in the bottom of an upflow bleach tower.

To assure the intake of the purest air possible an important consideration in the designing of the ventilation system is the direction of the prevailing winds and also the danger of contamination from other processes.

Using Historical Records

If he is to project adequately an intelligent maintenance plan, the man in charge of maintenance—whether he be the plant engineer, master mechanic or someone on the staff of the plant engineer, should be responsible for keeping a separate up-to-date history card on each piece of bleach plant equipment.

A good history file will be prefaced with written instructions giving the proper use of the file forms and specific details as to the duties and responsiblities of those charged with the maintenance program and directions for dismantling each item with a check list of conditions to inspect.

To assist in equipment identification, all items should bear a permanent mill reference code number. This avoids the possibility of working on the wrong unit. This number should appear on the history card as well as on the piece of equipment. It should serve to identify the equipment both for accumulating of repair costs and for maintenance purposes. Maintenance personnel should use the number when making and reporting repairs and operating personnel should use it when making written requests for repairs or replacements. The identifying number should follow the equipment until sold or scrapped. Complete and accurate records should be kept to show the material of construction of each piece of equipment.

Inspection which call for actual dismantling of equipment such as pumps, heat exchangers, chlorine mixers and other items can only be performed on a complete shutdown basis and should be scheduled to coincide with the normal pulp mill maintenance shutdown periods. At these times a skilled and experienced mechanic should inspect for excessive impeller wear, foreign materials, bent conveyor flights, corrosion and so forth. Tile linings of towers and chests, tile washer vats and rubber lined vessels should be inspected closely for signs of wear or deterioration.

Routine inspections by the mechanical department, however, are not sufficient even if on a frequently made basis. Each operator should be trained in responsibility for reporting any irregularities such as noisy gears, hot bearings, frayed wires, blown gaskets, leaking pipes, packing leaks, inoperative equipment, foreign materials entering the process and so forth.

A well-organized system for recording routine physical examinations, reporting of operating irregularities, and evidence of repair or maintenance work will provide a recorded history that can serve as a valuable reference as well as a guide for future planning. It will be a ready reference for new employees or a possible justification for eventual replacement should too frequent repairs show the equipment to be too costly to maintain or inadequate in design.

It is not unusual to locate weak links in a maintenance program through study of the pattern of equipment failure or breakdown which the historical records will reveal.

Neglect of minor repairs or inspection, faulty lubrication or careless, inexperienced or irresponsible operation are conditions that will soon be spotted from well kept records.

Materials and Their Care

Because of the great number of chemicals and numerous concentrations used in the bleaching process there are usually more types of construction materials used in this particular area than in any other mill department.

Piping materials may be 304, 316, or 317 stainless steel, black iron, Saran-lined, glass, rubber-lined and the like in many sizes and schedules.

Pipes and vessels with special linings such as Saran or rubber need to be clearly marked to avoid the possibility of someone welding to the outside and damaging the lining.

Pyrex pipe is subject to shock damage and it is advisable that it should be boxed for protection.

Pyrex pipe is finding wide acceptance as a low maintenance material around the CLO_2 generator and absorption tower. When used on chlorine dioxide, Pyrex piping should be wrapped with black cloth to avoid the decomposition of gas due to light exposure.

Note: Due to the presence of hydrogen gas in the area "NO SMOKING" signs should be posted in the area and this safety precaution

Fiberglas is proving to be the most effective of all materials of construction for hoods and duct work. It is simple to assemble, easy to repair or cut, easy to clean, and easy to support.

should be rigidly enforced. No welding nor any open flame should be allowed in the area.

Black iron is still commonly used for caustic and chlorine service and has a reasonable life expectancy on sulphuric acid service, provided moisture is kept out of the lines. It is common practice to leave the acid lines full during normal shutdowns to avoid the possibility of damp air starting a corrosive action on the interior face of the pipe. As a safety precaution against the possibility of acid spraying from leaks some mills have wrapped their sulphuric acid lines with lead.

Chlorinated stock lines of mild steel pipe with hard rubber lining are growing in favor over the 316 stainless steel lines common a few years ago. The life expectancy of properly installed rubber lined pipe should exceed the 316 stainless steel for this service. However, the hard rubber lining should not be expected to act as a gasket at the flanges. Soft rubber gaskets should be used to insure absolutely tight joints.

Fiberglas has been found to be acceptable piping material for exhaust lines and drainage lines where acid conditions prevail.

To assist in pipe line identification many mills have undertaken various means of color coding, name stenciling or other labeling. Providing this system is maintained and kept up to date it is a valuable and desirable one.

Maintenance costs will always be higher in a plant where insufficient thought has been given to providing sufficient room for a good piping layout. It is another reason why maintenance requirements should be given careful consideration in plant designing.

Processing Equipment

Machinery used for processing in the bleach plant will represent an even greater variety of materials of construction than that used in piping.

Chlorine Dioxide Handling. The problem of finding materials of construction to stand up in the mixing equipment in the chlorine dioxide stage remains one of the most serious in the bleaching operation. Even high grade stainless steel has a limited life expectancy.

In this well-designed instrument control room, air conditioned, filtered air protects the bleach plant instruments.

Recent operating experiences are tending to show that titanium, in spite of its high first cost, will probably prove to be the most economical material of construction for the chlorine dioxide mixing equipment.

Whether the new materials of construction will ever make it possible to establish a routine maintenance program to supplant the system of regular shutdown inspections of the chlorine dioxide handling equipment seems doubtful. A check list system for inspection of pumps, heat-exchangers, blowers and the like assures a periodic coverage of all equipment and is the best preventive maintenance in this area of high corrosive exposure.

The pumps, mixers, scrapers, agitators, feeders and so forth are simple in design and so long as the bearings have correct lubrication and seal water is used where called for the equipment will work according to plan.

The Washers. Since the vacuum washer is the biggest and the most expensive item in the bleach plant the care and maintenance of this unit warrants special emphasis.

At regular intervals the drain plug should be removed to check for any water that might have gotten into the interior drum. If water should be found the inspection hatch should be removed and the drum should be entered to find and repair the leak.

The maintenance department should keep in mind that, whether the exterior of the washer is stainless steel or rubber covered, the interior structural members are made of cast iron or mild steel and are subject to corrosion from the water entering the inner drum through a surface damage.

Further than that, water in the interior in any quantity can cause deflection in the drum, putting an additional load on the main bearings that could cause misalignment in the drive.

At each wire change the exterior of the drum should be thoroughly inspected and any areas of corrosion should receive immediate attention. If the drum is rubber covered or synthetically coated the covering should be thoroughly inspected and all loose or blistered areas should be patched immediately, following the directions and using the repair kit supplied by the manufacturer.

Instrumentation. Bleach plant operation calls for a substantial array of instruments. For efficient operation it is vital that they function correctly. Wherever possible they should be housed in an area that is well ventilated with fresh, clean air.

With pneumatic instruments a supply of clean, dry air is the best insurance against maintenance trouble.

Periodic inspection and cleaning of both the pneumatic and electronic instruments will usually turn up potential troubles before they become serious.

Rapid changes and new developments are probably hitting the instrument field more noticeably than in other areas of equipment. Some

To assure the intake of the purest air possible by the ventilating system, the direction of the prevailing winds and also the danger of contamination from other processes must be taken into consideration.

mills watching closely for excessive maintenance of older instruments have found it more economical to replace older troublesome items with newer designs.

In mills where instruments must be exposed to corrosive atmospheres or ordinary weather conditions care should be exercised in selecting good weatherproof casings.

Design For Convenience

When surveying equipment design the purchaser would do well to observe whether proper consideration has been given to facilities for inspection convenience. The operator should likewise keep inspection in mind in equipment that is built or assembled in the mill.

Thoughtful planning along these lines can lead toward elimination of such common annoyances as having to use a step ladder to reach a manhole or the necessity of having to use a portable pump to drain a vessel.

All vessels, vats, chests and process equipment should be designed with adequate drains leading directly to generous floor trenches and equipped with conveniently accessible manholes.

Satisfactory arrangements for tank dumping should be considered imperative. Because of the chemicals present in the stocks, tank contents should not be dumped onto the floor. Such practices are damaging to the flooring and present a safety hazard.

Problem of materials that will stand up in chlorine dioxide mixing equipment is most serious. High grade stainless steel has a limited life expectancy. Titanium, however, is showing very good economies.

Lubrication

All equipment should be lubricated in strict accordance with manufacturer's instructions as to type of lubricant and at what intervals. Lubrication should be the responsibility of the master mechanic. All equipment should be properly lubricated after each repair or shutdown has been completed.

A convenience in common use by many mills is the color-coding of grease fittings and oil filler caps with the corresponding color for grease guns and oil cans to assure the use of the proper lubricant. To aid in insuring 100 per cent lubrication all inaccessible grease bearings should be equipped with extensions so that they can be serviced conveniently and quickly.

In Conclusion

The remarks in this article are aimed at helping to plan a better bleach plant maintenance program. Some of them seem so obvious as hardly to warrant repeating. Yet it is often the obvious that is overlooked, only to be the cause of quite unnecessary troubles.

Those remarks pointing to the advisability of proper planning prior to plant construction are of little use to the operator who is now struggling with the curses of inadequate early planning. But an article such as this would be remiss if it did not cover the gamut of aspects having a bearing on the subject under discussion.

It is equally obvious, but can bear repeating that good plant maintenance, in whatever area, requires the best efforts and full cooperation of both the operating and the maintenance personnel.

In summary, we repeat that good bleach plant maintenance begins with:— 1, adequate plant planning; 2, careful equipment selection; 3, well kept operating records and history card files; 4, operator responsibility for equipment surveillance; 5, periodic inspection by the mechanical department; and 6, immediate attention and repairs to trouble sopts.

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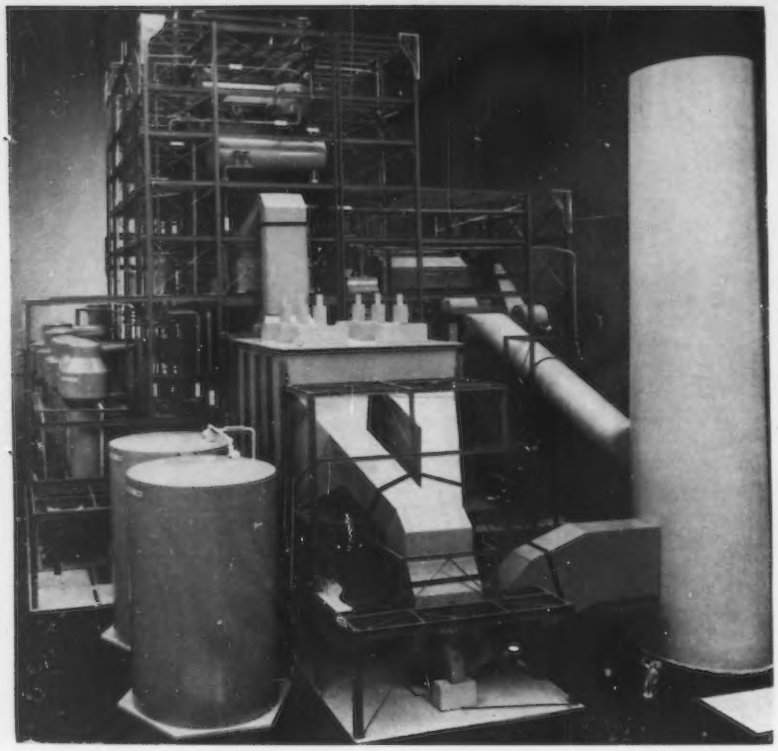


Celgar employed models during the engineering, construction and training stages. Here the power and recovery group is seen from the north side showing the precipitator in the centre, black liquor storage in left foreground, evaporators in left background. Man standing near base of stack indicates scale of model.

Engineered Economy Featured in Celgar's Recovery and Steam Plants

New B. C. $50 million bleached kraft pulp mill now being tuned-up was designed with particular care for maintenance, operating convenience and economy.

Celgar's new bleached kraft pulp mill is nearing completion in British Columbia's colorful Arrow Lakes District, lying in the Columbia River Valley just north of the United States border. Section by section the 500-ton capacity mill is now being tuned up and is expected to be producing bleached pulp early in 1961.

Adjacent to the pulp mill and designed to supply it with about ten per cent of its chip requirements, as well as with hogged fuel for steam production, will be a modern sawmill which next July will begin to produce construction and finished grades of lumber. This combination represents the Province's first integrated forest operation away from the Coastal Region. The Lower Arrow Lakes is already fringed with storage rafts of bundled pulp logs as the wood supply builds up.

The first units of the Celgar mill to go into operation were the steam plant and woodroom so that chips could be stockpiled prior to the start-up of the pulp mill.

The steam requirements of both the sawmill and pulp mill will be supplied by the steam and recovery plant of the pulp mill, utilizing the combined residue from the woodroom and sawmill and black liquor from the pulping process. Design material and heat balances indicate an approximate "in balance" situation in respect to auxiliary fuel. An excess of hogged fuel stored in the yard during the summer months will be used to meet increased winter load conditions.

Efficient Design Minimizes Capital Outlay

The plant design shows what can be done to minimize capital expenditure without sacrificing operating convenience, material quality, or plant efficiency. The size of the building and the selection and arrangement of the equipment were the determining factors in keeping first costs in line. The building floor area is about 40 per cent less than conventional plants performing the same service. To utilize available space to the best possible advantage and avoid congestion, the location of each piece of equipment has been chosen with care.

Layout was facilitated by the use of a scale model. Preliminary design

was checked out on the model with an eye for best location, room for maintenance, operating convenience, and lack of interference with other services. In this way costly field changes were largely avoided, and the additional design effort resulted in a better than average grouping of equipment and controls.

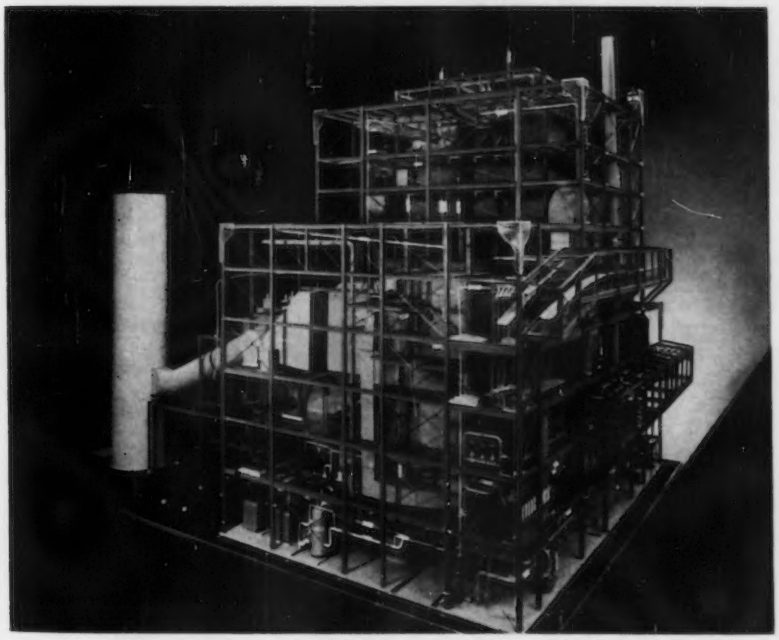
Equipment selection was made on the bases of quality and first cost rather than personal preference. Control items were carefully evaluated and non-essentials were eliminated. In the choice of materials capital outlay was balanced against service life and replacement cost.

As construction draws to a close the plant is being tuned up a unit at a time. Outside chip piles begin to rise. Behind the two silos can be seen the liquor-making system and part of the pulping group buildings.

Power Boiler

Two boilers supply the steam requirements. A Foster Wheeler power boiler was designed to generate steam at 600 p.s.i.g., 750° F. superheater outlet temperature from water at 270° F. and produce 285,000 lbs. per hr. when fired with mill waste and gas. The unit is designed to operate on saw mill waste and/or gas with oil as a stand-by fuel. The normal operating load will be 125,000 lbs. per hr. on mill waste. Wood waste from the sawmill and woodroom will be pressed, hogged and supplied to the plant at 55 per cent moisture. An estimated 24,400 pounds an hour will be available. Excess hogged fuel will be returned to the yard storage.

The boiler is equipped with Kent combustion control equipment; control of combustion and feed water is fully automatic. Five variable speed feeders proportion the hogged fuel supply to the pneumatic spreader stokers which distribute the fuel over sloping pinhole grates. Air for wood is damper controlled through four compartments under the grates. The furnace is equipped with eight Peabody ring-type gas burners combined with oil burners, four on each side. Air for combustion is heated in an integral air heater. A multi-clone dust collector reduces the possibility of carbon contamination of the outside chip storage; the fly ash collected is returned to the boiler by a cinder return system. A pneumatic ash disposal system will facilitate removal of ashes from the plant.



Power boiler in foreground was first unit to start-up to permit operation of woodroom to stockpile chips. This view from south west corner gives a clear picture of the steam and recovery plant layout.

Recovery Boiler

The recovery boiler is a 500-ton per day Combustion Engineering unit originally designed to burn 1,600,000 pounds of solids every 24 hours. After the order was placed, a change was made in the designed arrangement of the heating surface to change the rating to 1,800,000 pounds of dry solids per 24 hours. The boiler is rated at 224,000 lbs. steam production, 600 p.s.i. 750° F. superheater outlet temperature when operating at rated tonnage. Combustion Engineering has incorporated the latest innovations in recovery design in this unit. Particular consideration has been given to the arrangement of superheater and screen tube platens, welding of tubes during erection and a change in economizer design to facilitate erection.

Steam for process and heating is supplied to the mill at 175 and 75 p.s.i. Most of this steam is provided by auxiliary turbine drives operating at 600 p.s.i. and exhausting at either 175 or 75 p.s.i. The balance of the requirements will be provided

through reducing stations. Hydro power in the area is available at a mill rate attractive enough to make it uneconomical to use steam to generate electrical power.

Feed Water Supply

Water is supplied to the boilers through a common feed water system. Ratio of condensate return to make up will be in the order of 60/40. The make-up water originates from the Ranney deep well system that supplies the mill. This water has a total hardness of 100+ p.p.m. and a silica content of 17 p.p.m. making it unsuitable for boiler feed without pre-treatment. A Cochrane desilicizer pre-treatment plant conditions boiler make-up water. The plant includes three cation units; three anion units; brine, caustic and acid handling and storage equipment; and the necessary controls for automatic operation. The plant is rated for 450 g.p.m. and will reduce the total hardness to 0.2 p.p.m. and the silica to 1.0 p.p.m. Feed water is heated in a Graver 500,000 lb. per hr. spray-type deaerating heater designed to operate at 45 p.s.i. Three Klaen-Schanzlin-Becker feed water pumps supply water to the boilers. Two of these pumps are turbo driven 850 g.p.m. units: the other is a motor driven 500 g.p.m. unit. One of the 850 g.p.m. pumps supplies both boilers under normal load conditions. Each boiler is equipped with a three-element feed water control system and a main auxiliary feed line.

Barker Pumps

High pressure water for the two hydraulic barkers in the wood room is supplied from the steam plant, by 1,275 g.p.m. K.S.B. pumps. The two pumps are driven by 1,600 h.p. Westinghouse turbines. A third unit will be installed at a later date to provide water for a barker in the new sawmill.

Mill Air Supply

Mill and instrument air is supplied by three Canadian Ingersoll Rand 600 c.f.m., 125 p.s.i. XVHC type air compressors. Two of the compressors are motor driven and the third is turbo driven. An innovation here is the use of aluminum piping for the high pressure air distribution system.

Liquor Supply System

Every precaution has been taken to minimize air and stream polution. Weak black liquor from storage is treated in a Lunberg Ahlen B-T Metoder oxidation system before being pumped to the evaporators. The system is made up of two sets of identical equipment: oxidation tower, foam box, cyclone and blower.

The Evaporators

Evaporators are located in the steam and recovery building. They are supplied by Conkey Equipment C. B. & I. manufacture LTV type, six body sextuple effect integral units. They are rated at 590,000 lbs. per hr.—170 F.—15 TS inlet and 170,000 lbs. per hr.—188° F.—52 per cent TS outlet, evaporation 420,000 lbs. per hr. Steam requirements 81,800 lbs. per hr. at 40 p.s.i. economy 5.14 lbs/evaporated per lb. steam.

The gases leaving the recovery boiler pass through a Research- Cottrell wet bottom precipitator a double unit, horizontal gas flow design, rated for 220 c.f.m. gas at 325° F. The precipitator is equipped with opzel collecting plates and loop ring supported, weighted, stainless steel discharge wires. Energy is provided by three 70 KVp, 460 ma. silicon rectifier transformers controlled by the Cottrell automation system. Rappers and controls are provided for the collecting and distributing plates, and a syntron electromatic vibrator system for cleaning the discharge electrodes.

Instrumentation and Controls

The controls for the power boiler, the recovery boiler and the evaporators have been centralized on the operating floor. The three panels will be joined to form one unit. This arrangement simplifys the training of personnel and permits a combining of duties that would not be possible otherwise. The controls for the deep well pumps suppling mill water, and the controls for the black liquor oxidation system are incorporated in this common control panel.

Operating Personnel

The operation of the steam, recovery, recausticizing and lime kiln departments will be combined for the purpose of manning and the line of promotion in this area will be progressive through the eight job categories involved. This arrangement is a logical one because of the interrelationship of the services provided; and it has the added advantage of bringing the certificated steam engineers as a group closer to the pulp production. The high standards set by the B. C. Inspection Department insure a good selection of certificated personnel. The steam and recovery plant employs six men per shift: a salaried supervising shift engineer with a valid second class B. C. Certificate; a recovery engineer with a valid third class B. C. Certificate; a power boiler engineer with a valid fourth class B. C. Certificate; a first assistant recovery evaporator operator; a shift utility man and a second assistant recovery man. Recausticizing is staffed with two men: a recausticizing operator and a lime kiln operator.

Double Wire Fourdrinier May Improve Wire Life and Formation

This unique double wire design provides a possible solution to difficulties inherent in high speed operation. Advantages and economics of this idea of installing a fine mesh top wire and coarse mesh base wire are discussed below.

Akitoshi Kitano,
Jujo Paper Mfg. Co.,
Tokyo, Japan

As the speed of a fourdrinier machine is increased, its wire life becomes progressively shorter and the formation becomes poorer. To solve this problem the author has designed a double wire system in which the top wire is of fine mesh made of a plastic material, supported by a base wire of coarse mesh.

Some Problems on the Wire

1. Following the curvature of the table rolls by the wire. Between the sheet on the wire and a table roll, just past the nip, strong suction takes place due to the rotation of the roll, and the wire is curved in balance with the wire tension. Such a phenomenon indicates that the sheet on the fourdrinier wire must be vibrating up and down.

As the suction force between the wire and the table roll is in proportion to the square of wire speed, suction increases greatly as the speed increases, therefore the sheet forming condition gets progressively worse. In other words, vertical vibration like this will cause stock jumping after the slice and also obstruct formation of the sheet on the fourdrinier wire, consequently, it forces clay and fine fiber out of the sheet and increases two sidedness. While the stock remains fluid, the waviness on the surface of the wire tends to increase machine directionality.

2. Life of Wire. By being stressed with the stretch roll and driven with the couch roll, the wire of the fourdrinier machine turns each wire roll. During operation the tension load is increased because of friction with table rolls due to their dewatering action and the sliding friction of the suction area of suction boxes. The wire becomes brittle by its repeated twisting action over the rolls, and rapid wear on the underside of the wire is caused because it is forced to slide on the suction box due to inorganic material lodged in the box tops.

Sheet Formation Requirements

It is said that the sheet is formed in a very short time, e.g., by the second or third table roll on the wire. The ideal sheet forming conditions for uniform structure of sheet are to form a thin fiber mat rapidly on the wire, to prevent the loss of fine material and to keep the stock on the wire fluid for a certain time, without vertical vibration.

When stock is discharged on a fine mesh wire, therefore, the thin fiber mate is instantly formed with long fiber stock and the loss of fine material can be prevented. To make the fine web of uniformly interwound long fibers which form the structure, it is necessary to keep the fiber in a disturbed condition on the quiet sheet forming surface without any vertical vibration. As mentioned above, the resistance to filtration is large, so dewatering will be slow to satisfy the requirement.

In the case of quick dewatering with a wire of coarse mesh, inter-

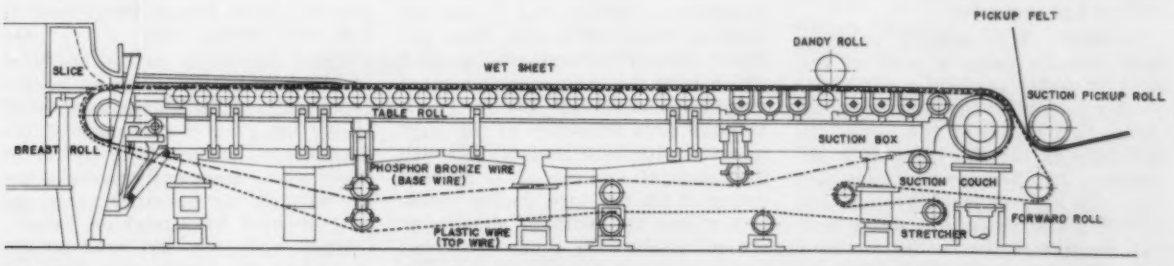


FIGURE 1. DOUBLE WIRE FOURDRINIER MACHINE.

twining of long fibers is poor and fine material flows out as white water before a sheet is formed on the wire. This results in a sheet with wire mark.

It is considered that two sidedness of a sheet is caused by the loss of fine materials on the wire side due to white water splashed against the back side of the wire from a table roll. A wire of fine mesh can reduce such a phenomenon. As described before, while the stock on the wire has fluidity "several feet from the slice", the sheet forming surface should be as flat as possible because stock jumping happens at high speed due to vertical vibration and sheet formation is thus damaged.

To make the wire surface across the table roll flat, a high tension corresponding to the dewatering resistance of the wet sheet should be given by using wires highly resistant to abrasion and tension. When the sheet forming surface is flat, a quiet sheet forming condition without vertical vibration can be acquired and the tendency of the remaining stock to flow in the machine direction is reduced, resulting in reduced directional features in the finished paper.

Even in the case of a high speed machine, the sheet on the wire can be largely dewatered before the suction boxes. It is therefore possible to dewater to the state where the stock is no longer fluid at the boxes, even if a wire of fine mesh is used. Therefore, the sheet formation can not be damaged when the remaining water is removed by the suction boxes. The higher the mesh of wire that is used, the higher the vacuum of the suction boxes must be. If water extraction on the wire is not sufficient, of course, transfer of the web across an open couch draw will cause breaks. Even with the pickup transfer system, the top felt absorbs a large amout of clay from the web together with water from the surface, resulting in fouling of the felt; so it is desirable to dewater as much as possible at the wire part. The dewatering capacity at the suction couch is limited by the adverse action of centrifugal force, therefore, maximum suction at the suction box is needed.

In short, it is possible to get a finer web by using a wire of fine mesh in order to form a filter mat quickly just after the slice, reducing the suction action of the table rolls and forming the sheet slowly by dewatering on a flat sheet forming surface with less vertical vibration, and removing the remaining water with high vacuum at the suction boxes.

In the conventional fourdrinier machine with a single wire, the higher the speed the more difficult it is to satisfy these conditions simultaneously because of limitations in the strength of the wire. Although the material and the weaving have been improved in order to make a wire of fine mesh with greater durability, the requirements for sheet forming conditions and durability of wire are internally opposed.

FIGURE 2. BASE WIRE USED.

Principle and Construction

The author has designed a double wire system which can form a flat forming surface of fine mesh which satisfies the above conditions by having a tightly stretched base wire woven of thick, strong wires which can endure the turning wear and bending action. It takes the wear from the surface of the suction boxes. Mounted above it is a wire of fine mesh.

The top wire of fine mesh is placed outside the base wire, thus, the forming wire is separated from the base wire beneath the machine, and its tension is controlled with a separate tension roll. The wire width of the base wire is slightly wider than the forming wire to protect the edges. The running directions of both wires are controlled by two different guide rolls. Guiding of the base wire is easily accomplished because it is under high tension. As the top wire is stretched more loosely, the guiding operation is delicate, but it does not seem to cause any trouble. Two different shower systems are installed, which have the same construction as that of a conventional machine.

While it is necessary at the start to drive with high pressure between the couch roll and top roll to prevent racing of the top wire, during operation it can run without slip, being pressed against the surface of sheet by the action of the suction box. The suction couch roll with a carefully machined surface drives the base wire.

Design

In conventional machines, means have been taken to avoid sudden dewatering by installation of forming boards, replacement of table rolls by grooved or wire rolls and reduction of the number of rolls. Such means are not necessary however with a double wire installation because a thin filter mat is quickly formed on the sheet forming surface due to the very fine mesh wire used. It is still possible however to get considerable effect from a forming board if it is installed.

Since the base wire of coarse mesh is interposed between top wire and table rolls, suction from the table rolls is somewhat weakened and is not increased much even if the wire runs at high speed. The longer the time that the stock remains fluid, the better the final web becomes. It seems therefore that the weaker suction of table rolls improves sheet forming conditions. But because the stock must be dewateded to a certain degree just before the suction boxes, it may be necessary to increase the number of table rolls or to make the wire longer if the suction action is not enough.

Being different from the conventional system, the sheet forming surface on the wire table can run in a level and quiet condition because the top wire is sustained by the strongly stretched surface of base wire.

Although it is desirable to complete the dewatering of the sheet by a high vacuum on the suction boxes, this is impossible in the conventional system because durability on the surface of the box is very poor. The base wire in this new principle, however, has great durability and is able to dewater effectively with high vacuum of the box, because it has many cross wires and its sliding surface is woven so that there is less friction. A base wire woven with plastic wires and metal wires is shown in Figure 2. In the wire maker's opinion, endurance of the base wire may be several times longer than that of fine mesh bronze wire.

Great tension is put on the wire of the fourdrinier machine by the couch roll, and the higher the driving speed, the greater the value of the double wire system. Care should be taken not to make any creases in the top wire during operation; this can be prevented by stretching loosely. Contact with rolls and wear on the surface of the suction box does not affect it, so its service life should be

long. A plastic wire of finer mesh than a conventional wire may be used in this position.

The base wire also has great durability due to being woven so as to be slippery on the under side. In other words, it does not matter how coarse the mesh is, and so it is possible to make it very durable. Tension put on the base wire is sufficient to ensure that the sheet formation surface is flat, and even if it is stretched greatly, it does not effect the top wire. Since the sheet forming surface on the table roll can be kept flat in the case of high speed operation and hard wear (if suction box vacuum becomes high), it is possible to speed up without changing the sheet forming condition.

A wire of fine mesh is necessary for rice paper, glassine, and condenser paper, and the machine speeds for these thin papers is normally relatively slow. If a change is made to the double wire system, it is possible to achieve a speed up because a tension load is not put on the top wire of fine mesh.

If the system is used on a newsprint machine pitch trouble may occur, but the double wire system still has an advantage because it is rather easy to remove pitch stuck on the fine top wire. The new system therefore may achieve increased wire life because of few replacements and will improve formation due to reduced two sidedness. Especially in case of high speed operation, there is less vibration on the sheet forming surface, and therefore sheet forming conditions are superior. The web will also have less directional characteristics.

Used on a printing paper machine, it is possible to manufacture paper of fine formation with less loss of clay. On examining the practical value of this installation compared with the conventional fourdrinier machine, its economical features can be said to be as follows.

In order to change to the double wire system, table rolls of the upper part should be kept as is, and the under part should be changed so as to allow the base wire and top wire to be sparately mounted. Location of the base wire may be as it is in the conventional installation, and beneath it the tension roll and guide roll should be installed to stretch the top wire. This installation can be easily accomplished because it does not need much space.

Although it is desirable to make the width of the base wire somewhat wider than that of the top wire, it does not seem necessary to make the width of the forming wire less because wire rolls and table rolls of the conventional machine are normally wide enough.

The top wire of fine mesh is fairly expensive, but its service life is long. Plastic wires can be used instead of metal wire and the cost may thus be reduced. The base wire of coarse mesh is less expensive than wire of ordinary mesh and is durable, so the rate of wear of both wires is lower than that of the conventional single wire fourdrinier system.

Although it takes time to replace the wire due to two wires placed one upon another, the ratio of total working hours is less than that for a conventional fourdrinier because of the long interval between each replacement.

The method of mounting both wires of this system is shown in Figure 3.

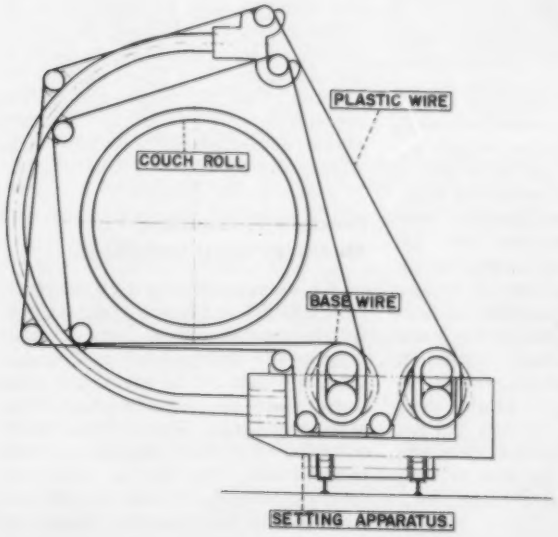
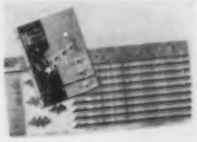


FIGURE 3. BOTH WIRES are placed around the couch. The top wire is first stretched out to the couch and then the base wire.

PJT NEW LITERATURE

Continuous Freeness Recording

Describes the Bailey freeness recording system for determining quality of pulp stock. Diagram is used to explain the operation with its associated recorder. Illustrations show an actual installation of a sample line in a final refiner on cold soda process semi-chemical stock. A list of instruments comprising the system is included. 2 pp. Bulletin. Bailey Meter Co., 1050 Ivanhoe Road, Cleveland 10, Ohio.



Air Control Valves

Covers ¼-inch NPT, two-position Balanced Spool Valves, normally closed or normally open two-way, three-way and four-way styles. Utilizes the exclusive Hoffman valve segment which makes possible thousands of different valve styles constructed from less than fifty standardized parts. Three page spread presents all model numbers, specifications and operators in one easy to read chart. Bulletin 60-1. Hoffman Valves, Inc., 2360 West Dorothy Lane, Dayton 39, Ohio.

Rockwell '080' Filter Regulator

Describes rugged, lightweight and economical filter regulator, applicable wherever a controlled supply of clean air gas is needed. It has a wide range of applications in commercial and industrial control systems. Constructed of pressure die cast aluminum, has a maximum inlet pressure of 250 p.s.i., and outlet pressure ranges of 0-5, 5-35, 35-100 p.s.i. Bulletin, 1111-A, Rockwell Manufacturing Co., Meter & Valve Division, 400 North Lexington Avenue, Pittsburgh 8, Pa.

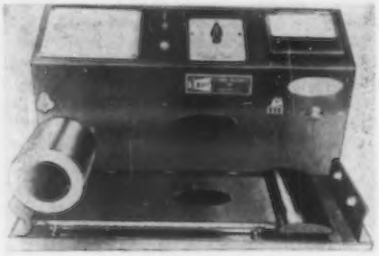
Wemco Torque Flow Pump

Describes How It Works, Why It Works and Where It Works, as well as a listing of applications from Acetic acid to zinc sulphate. The outstanding clog-free performance is due to its unique design. Waterways are one continuous passage, with no abrupt changes. 6 pp. Bulletin (P10-B46). Wemco, Div. of Western Machinery Co., Attn: Sales Promotion Dept., 650 5th St., San Francisco 7, Calif.

PJT NEW EQUIPMENT & SUPPLIES

Tests Absorption Rate, Forecasts Printability

The Vanceometer Tester is designed to evaluate in numerical terms, the absorption rate of sheet



surfaces, and forecast printability. Results are obtained in a matter of seconds, reports the manufacturer. It also forecasts the rate of absorption of other mediums such as adhesives, starches, sizes, inks, etc. By being able to forecast the rate of penetration of these mediums in numerical values, a valuable curve can be established. The Vanceometer is of particular interest to paper and board manufacturers and printers and carton converters.

It is possible to establish standard controls that will permit machine adjustment within minutes of the "Vanceometer Test". These tests forecast the receptivity of paper and paper board of various mediums such as ink, size, coating, adhesives, etc. Test results are obtained in less than one minute on both plain and colored stock. For complete details write to Testing Machines, Inc., 72 Jericho Turnpike, Mineola, N.Y.

Ball Valve With "Auto-Mating" Seats

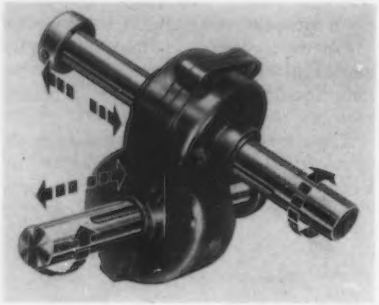
A concept in ball valve design is incorporated in the Fig. BL-300 R-P&C Forged Naval Bronze Valve recently introduced by R-P&C Valve Division.

The BL-300, rated at 300 pounds for water, oil or gas service at a maximum temperature of 250 degrees F, available in sizes ½ to 2 inches inclusive, has undergone hundreds of thousands of openings and closings without signs of leakage or wear, notes the company.

Easy to operate since it requires only a quarter turn of the handle to open or close compared to several full turns needed to operate a gate or globe valve, the BL-300 is a precision-built valve for general purpose service at a cost said to be no more than a high quality standard bronze gate valve.

The BL-300 has "auto-mating" seats that assure positive sealing in either flow direction which makes it ideal for vacuum service. The wiping action of the ball across the seats forces out foreign matter and thus prevents abrasive wear which causes the average gate or globe valve to leak.

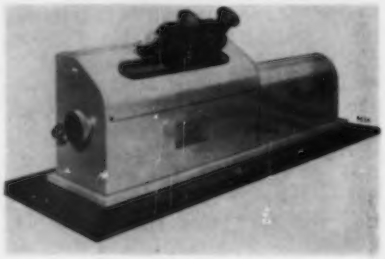
The Buna "N" Seats are impregnated with molybdenum disulphide to give a slippery, non-galling surface. Two "O" ring stem seals assure a leak-proof stuffing box. The body, cap, stem, disc and ball are made of naval bronze for maximum strength and safety. Further information may be obtained from R-P&C Valve Division, American Chain & Cable Co., Inc., Reading, Pa.



FLOATING RIGHT-ANGLE GEAR DRIVE is designed to meet the needs of many applications requiring power transmission at right angles with a 1:1 ratio. It is suited for operating packaging equipment, turn tables, conveyors, rollers, etc. Because of its designed simplicity, installing the drive consists of assembling the gears and housings around the shafts. This eliminates the need for separate couplings, supports, etc., and the normal alignment required on other right angle gear drives. The floating feature of this unit permits self-alignment and automatic adjustment on the driving and driven shafts. Tol-O-Matic, Inc., Minneapolis, Minn.

Viewer Visually Stops and Inspects Moving Web

Now it is possible to inspect visually moving webs of paper, plastic, foil and other materials while



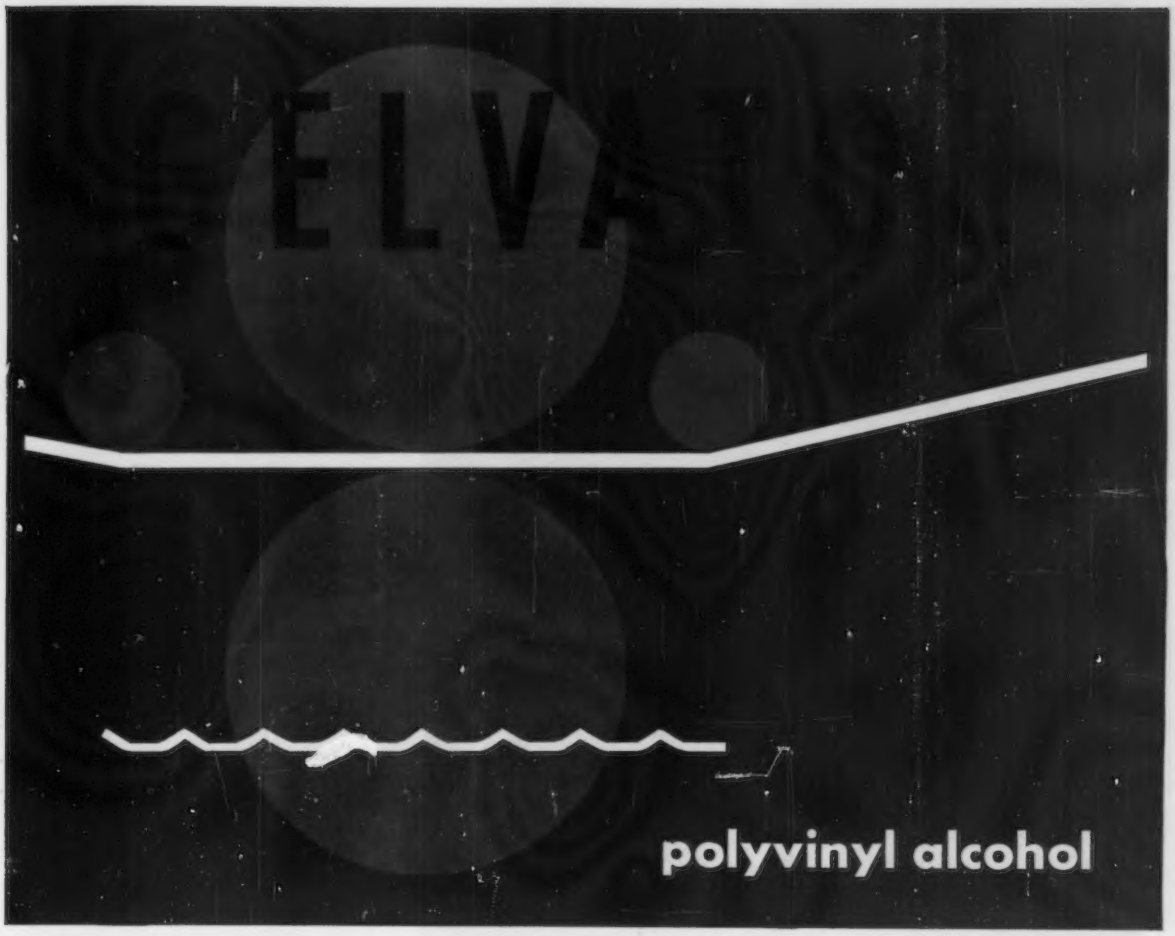
machines are operating at normal production speeds, reports Mount Hope Machine Co., Inc., of Taunton, Mass.

The Mt. Hope Web Viewer is an optical device which provides close-up or full-width examination of materials without interrupting production schedules. Although the viewer seems to stop moving materials, the illusion is created by an oscillating mirror system. As the plain or printed material passes the Web Viewer, the mirror system, which is automatically synchronized to the speed of the range, scans a given section, causing it to appear stationary. As each section passes from the observer's sight, the mirror system returns to the beginning of the stroke and "picks up" visually the next section to be examined.

The Mount Hope Web Viewer may be adjusted to examine patterns of different repeat lengths. This device permits careful inspection of colors, structure or register. With the mirror system operating at 400 cycles per minute, speeds at which the material may be viewed are determined by multiplying the repeat length by 400. Materials running at speeds up to 1500 f.p.m. can be examined in 45 inch long sections. The retractible 4X binocular permits closer inspection of any local area within the section.

Pressure Transmitter Measures Small Increments

A high suppression, high accuracy, "f/b-LINE" pressure transmitter, which consists of a force balance mechanism driven by a Bourdon tube, provides up to one to ten span suppression to measure small pressure increments. Conventional mathods used in motion balance pressure transmitters provide a maximum span suppression of only one to two. Available in five pressure ranges up



brings out the best in pigment bindings, coatings and sizings

More and more leading paper makers are finding GELVATOL Resins highly effective for improving their products while gaining the added advantages of economy and easy handling. GELVATOL Resins' balance of properties offers you proved-in-use advantages. Apply GELVATOL from size tub, size press, water box or in coating mixes to produce:

Improved Ink Hold-out. Minimizes ink spread and feathering and produces prints of high gloss. Stretches ink mileage in highly absorbent stocks.

Improved Pigment Binding. GELVATOL Resins produce a bright, opaque sheet with excellent print qualities.

Improved Strength. Increases Mullen, pick resistance and fold endurance.

With capacity recently increased by 100%, GELVATOL polyvinyl alcohol is now available in an even wider variety of grades, and in any desired quantity. Write for full technical information to Shawinigan Resins Corporation, Department 7P, Springfield 1, Massachusetts.

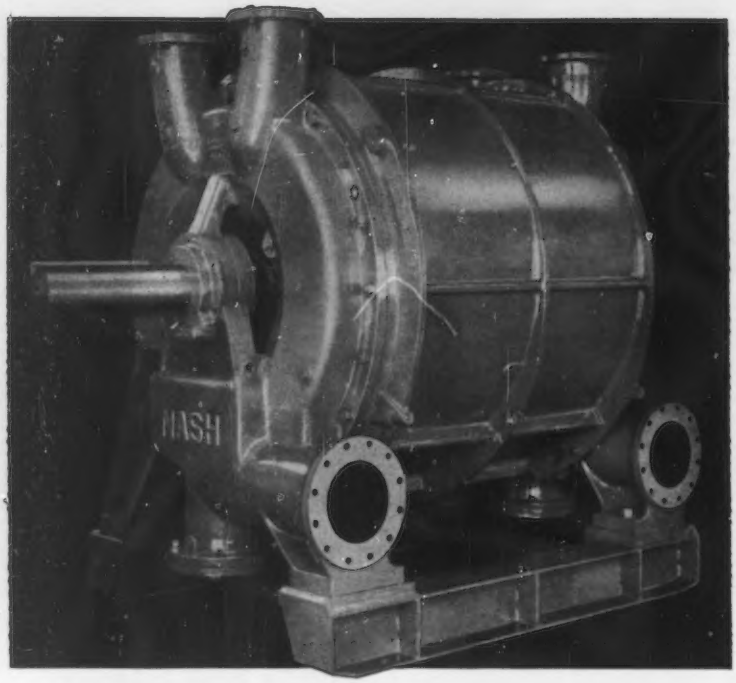
GELVATOL CHARACTERISTICS

Resin Type	Viscosity, cps.	% Residual Polyvinyl Acetate	% Hydrolysis
1-90	55-65	0-2	100-99
3-90	45-55	2-4	99-97.9
20-90	35-45	19.5-24	89-86
1-60	28-32	0-2	100-99
3-60	23-28	2-4	99-97.9
20-60	21-25	19.5-24	89-86
1-30	4-6	0-3	100-98.5
20-30	4-6	19.5-21.5	89-87.7
40-20	2-3	37-42	77-72.9
40-10	1.3-2	37-42	77-72.9

SALES OFFICES: ATLANTA CHICAGO LOS ANGELES NEW YORK CLEVELAND SAN FRANCISCO GREENSBORO ST. LOUIS

GELVATOL® *polyvinyl alcohol by* SHAWINIGAN RESINS®

Just 3 days lost production of a Paper machine can cost more than the vacuum pumps. That makes dependability the essential factor in pump selection. No pump is more dependable than a Nash

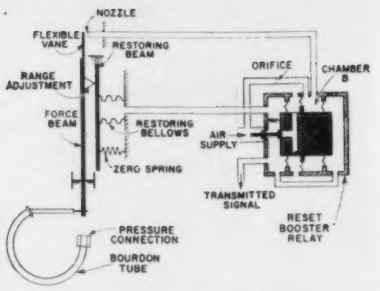


Over a thousand leading mills depend on Nash Vacuum Pumps to insure uninterrupted production. Nash Pumps are built to stand the pounding of continuous operation. They are simple. They have no internal parts in wearing contact. They will handle slugs of water or stock. They are designed to operate at the low speeds necessary for long life and reliability. Don't gamble with your production. Install Nash Vacuum Pumps and be safe.

The new Nash 5308-A shown above, has four separate suction inlets, each of which functions independently of the others. This offers the machine operator great flexibility, since these may be used in any desired combination to produce a variety of capacities and vacuums.

NASH ENGINEERING COMPANY

SOUTH NORWALK, CONN. U. S. A.



to 7,500 p.s.i.g., the unit is produced by Bailey Meter Co., 1050 Ivanhoe Road, Cleveland 10, Ohio.

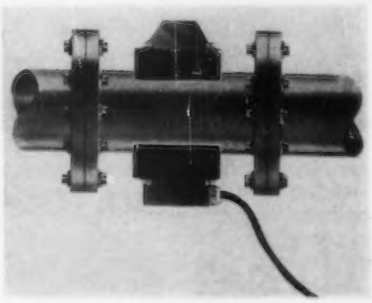
The Bailey force balance pressure transmitter is claimed to be the first pressure instrument to utilize the force produced by a Bourdon tube rather than its motion.

The transmitter is capable of expanding a small pressure increment to cover the full signal range for accurate measurement or control. All pressure measurements are transmitted over standard SAMA signal range of three to 15 or three to 27 p.s.i.g. The transmitted signal is factory calibrated to be accurate within one-half per cent of metered range span. A metered range span of 100 p.s.i.g. will be accurate within one-half p.s.i.g.

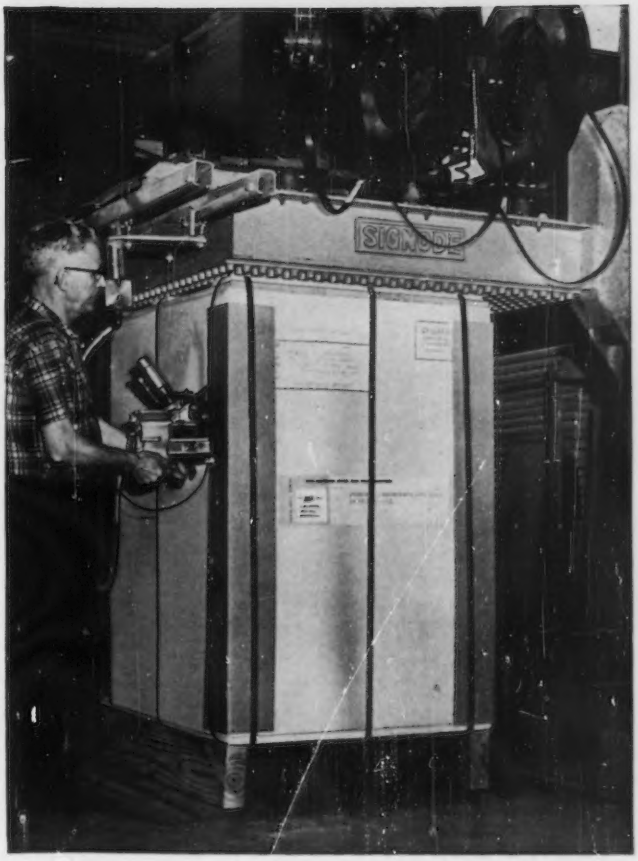
Controls Consistency of Sludge in Pipe Line

Komline - Sanderson Engineering Corp., Peapack, N. J., and Brampton, Ont., Can. announces a sludge reader that is said to eliminate the problems associated with maintaining proper sludge or slurry flow consistencies passing through pipe lines.

Utilizing nuclear energy, the Sludge Reader will react to changes in solids concentrations passing through the line and, at a predetermined consistency, start or stop the sludge pump. The Sludge Reader uses a low energy source which passes through the flow pipe and the pipe's contents to a detector mounted diametrically opposite the energy source. Variations in the sludge density in the pipe will cause varia-



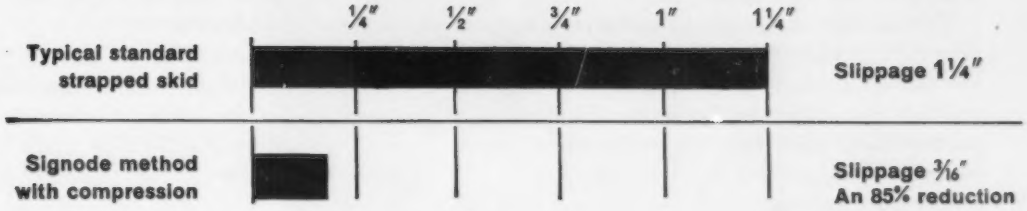
Compression strapping the Signode way reduces paper slippage 85%



This skid of paper is being strapped on a new Signode CS20-1 press which compresses the load while the worker applies steel strapping with a fast new Signode power tensioner-sealer tool. The paper will arrive at destination in top condition. The mill has improved its product, yet reduced its costs per skid for time and materials!

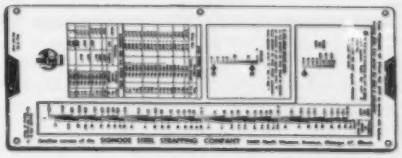
Here's Proof!

PAPER SLIPPAGE, STRAPPED PAPER SKIDS, AFTER 5 IMPACTS



Write today for all the facts on this important new development from Signode.

New free steel strapping calculator helps you buy steel strapping at least cost according to your needs, and shows new strength figures for Signode steel strapping. Write for yours.



SIGNODE

First in steel strapping

SIGNODE STEEL STRAPPING CO.

2677 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide

In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

YOUR NEW PULP/PAPER MILL AT A PREDETERMINED FIXED PRICE

A unique and economic approach to capital investments in new mills has been introduced to the industry by Kellogg through its over-all engineering-procurement-construction responsibility for Tennessee River Pulp & Paper Co's. new 500 T/D kraft pulp and liner board mill.

This method of minimizing and accurately predetermining plant costs was perfected by Kellogg through long experience in designing and building multi-million dollar projects for the oil refining and petrochemical industries—two of the world's most consistent and experienced capital investors.

Kellogg's approach, basically, is a matter of working closely with the client to integrate process and plant design, materials and equipment procurement, and all construction steps into one operation. Whether Kellogg is the sole contractor or is working with many sub-contractors, the end result is the same—a highly efficient plant at a predetermined fixed price.

Executives interested in learning more about this economic and proved approach to new production facilities are invited to write for Kellogg's brochure—"Planning the New Plant for Profits." Your copy can be obtained promptly by returning the coupon.

KELLOGG

THE M. W. KELLOGG COMPANY
(A subsidiary of Pullman Incorporated)
711 Third Avenue, New York 17, N. Y.

Please send copy of brochure—"Planning the New Plant for Profits."

Name_____

Title_____

Company_____

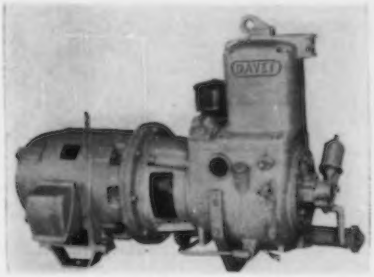
Address_____

tions in the nuclear beam as received by the detector. These variations are passed on to a computing circuit that energizes the pump controls, stopping the pump when the flow gets below the desired consistency, then clearing the line and starting the pump again when flow consistency regains the desired level.

Separator Reduces Oil Consumption by Compressors

Davey Compressor Co. announces that its improved oil-cooled industrial stationary rotary models are equipped with a redesigned oil separator. The latter, shown at top right of photo of 40 h.p. unit, is said to greatly reduce compressor oil consumption and oil content in air produced by the compressor.

The separator contains an inorganic fiber glass element which



accumulates fine particles of oil that drain back to the intake section of the compressor by means of a pressure-reducing oil return valve.

The manufacturer states that the amount of oil used by the improved rotary machine is no greater, and frequently less, than that used by reciprocating compressors. Also, oil in air coming from Davey rotary units is claimed to be less than 1 ounce in every 28,000 cubic feet. Davey industrial compressors are offered in 2 to 125 h.p. sizes. Standard portable machines are available in 60 to 600 c.f.m. capacities.

Temperatures Maintained While Liquid is Pumped

Lawrence Pump & Engine Co. is now offering a line of "temperature controlled" jacketed, open impeller, heavy duty, centrifugal pumps covering a wide range of head-capacity conditions.

Type "TC" Vortex Pumps are designed to handle molten products such as sulfur, ammonium nitrate, urea, phthalic and maleic anhydride, waxes, special oils, etc. Steam or other heat or cold transfer mediums may be circulated through the jack-

Add a Quality String to Your Bow...

WALLINGFORD

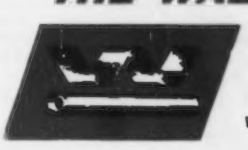
Stainless Strip and Tubing

If you are aiming at new design or performance targets for your stainless steel products — or parts — Wallingford can add an important quality string to your bow.

Every pound or inch of Wallingford Stainless Steel Strip and Tubing is of consistent, unmatched quality, because *Wallingford produces tonnage on a laboratory basis.* Exacting standards — unsurpassed in the industry — are maintained by utilizing the most advanced production control methods and facilities yet developed. Tensile tests, X-ray diffraction studies, automation gaging, laboratory samplings, and many other tests and techniques assure *super-quality.*

Are you presently getting this "quality insurance" when you purchase stainless steel? If not, contact The Wallingford Steel Co., Wallingford, Conn., for further data and a copy of our latest data book.

THE WALLINGFORD STEEL CO.



Progress in Metals for over 37 Years

WALLINGFORD, CONN., U.S.A.

COLD ROLLED STRIP: Super Metals, Stainless, Alloy

WELDED TUBES AND PIPE: Super Metals, Stainless, Alloy

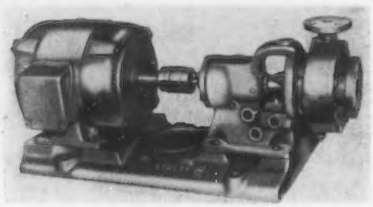
eted suction cover, volute, and stuffing box areas of the pump to maintain constant pumping temperatures.

Type "TC" horizontal pumps are mounted on oil lubricated water cooled bearing housings and are available in cast iron, ductile iron, stainless steel, and other machineable alloys. Basic pump components may be used interchangeably for horizontal and vertical pump applications. Write Lawrence Pump and Engine Co., Canal & Marston Streets, Lawrence, Mass.

Small Capacity Centrifugal Pumps

To meet those requirements where relatively small quantities, up to 115 g.p.m., of corrosive chemicals or slurries, thick or abrasive, must be handled for heads up to 150 feet, two sizes of a line of single stage side suction open impeller pumps are now available from Goulds Pumps, Inc., 216 Black Brook Rd., Seneca Falls, N. Y.

Designated as Model 3199, pumps



have 1 inch flanged discharge and 1 inch and 1½ inch flanged suction connections. Flanges are flat face 150 lb. standard. Standard assembly provides top vertical discharge but horizontal top or bottom discharge position is also available. Frame has wide openings giving ready access to land and stuffing box and is provided with cooling chamber to isolate bearings and prevent heat transfer to the bearings. Grease lubrication of the ball bearings is standard but oil lubrication can be furnished on order.

Impellers are statically and hydraulically balanced and are provided with ejector vanes on back wall to prevent entrance of solid material and to reduce stuffing box pressure. Stuffing box has five rings of die-formed packing and lantern-type liquid seal ring. Tapped in-and-out openings to seal ring allow use of clear liquid seal, clear liquid flush or grease seal to solve individual packing problems when pumping slurries. Mechanical seals can be used without making any alterations in the stuffing box. Pumps are available in bronze fitted, all iron, all bronze, 316 stainless steel and Gould-Alloy 20.

Prices of Fibers

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedian	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	§290.00/ —	§280.00/ —	§290.00/ —
Bleached Gw'd.	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	‡135.00/150.00	140.00/150.00			§157.50/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	135.00/140.00	135.00/140.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn.		140.00/ —	†134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED NOVEMBER 29

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$8.00/7.75	n.a.	n.a.	8.00/7.50
3	7.75/6.75	$7.50/7.25	$7.50/7.00	7.25/6.75
4	6.75/6.00	6.50/6.25	6.50/6.25	6.50/6.25
5	6.00/5.50	6.00/5.75	6.00/5.50	— /6.00
6	5.50/4.50	5.25/5.00	5.25/5.00	5.00/4.00
7	4.50/4.00	4.50/4.00	4.75/4.00	n.a.

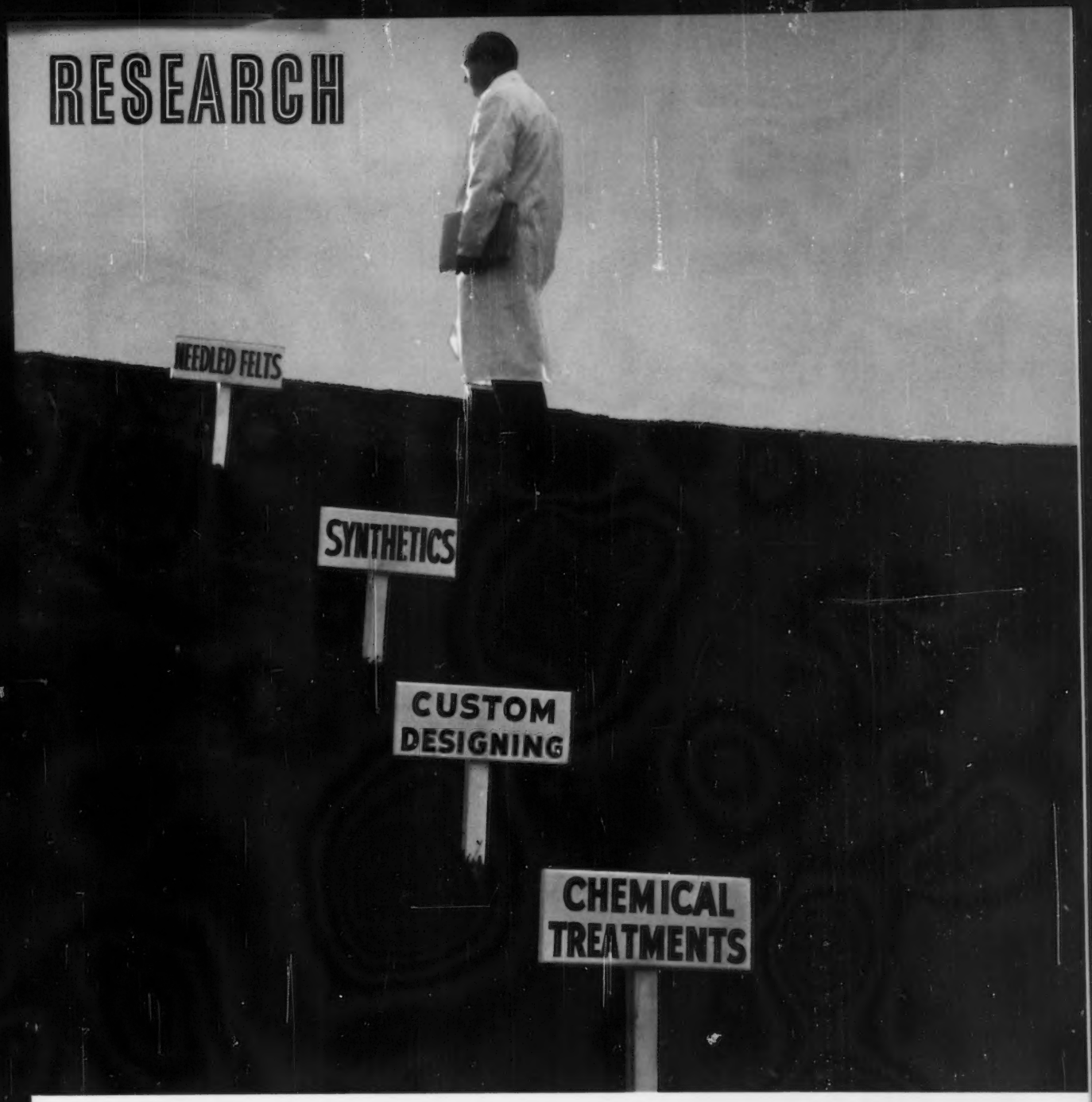
WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Dec. 5	Dec. 5	Dec.	Dec.
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	11.00/ —	12.00/
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	16.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00/ -	13.00/ —
Old Corrugated Containers	19.00/ 20.00	17.50/ 18.00	18.00/ —	17.00/ 18.00
Super Resorted Kraft Paper	35.00/ 40.00	— / —	28.00/ —	50.00/ 55.00
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	30.00/ 32.50	30.00/ —	27.50/ 30.00
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 70.00	47.50/ —	55.00/ 60.00
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	45.00/ 50.00
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	50.00/ 55.00
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	10.00/ —	30.00/ 32.50
White Newsblanks	42.50/ 45.00	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 60.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	- / —
Hd. White Shvs.	75.00/ 80.00	80.00/ 90.00	75.00/ —	85.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	40.00/ 42.50	40.00/ 42.50	37.50/ —	35.00/ 40.00
Manila Tab. Cards	57.50/ 60.00	57.50/ 60.00	55.00/ —	60.00/ 65.00
No. 1 Col. Ledger	32.50/ 35.00	30.00/ 35.00	40.00/ —	24.00/ 27.00
White Ledger	45.00/ 50.00	42.00/ 47.00	50.00/ —	45.00/ 55.00
Mixed Book & Mag.†	— / —	— / —	10.00/ —	— / —
No. 1 Books‡	15.00/ 17.50	22.00/ 24.00	25.00/ —	10.00/ 12.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.



New ideas for paper industry progress are important aims of Albany Felt Company.

Some achievements already developed are now contributing to increased production and higher quality paper and paperboard. Other new ideas under test in our laboratories promise even further advancements for the future.

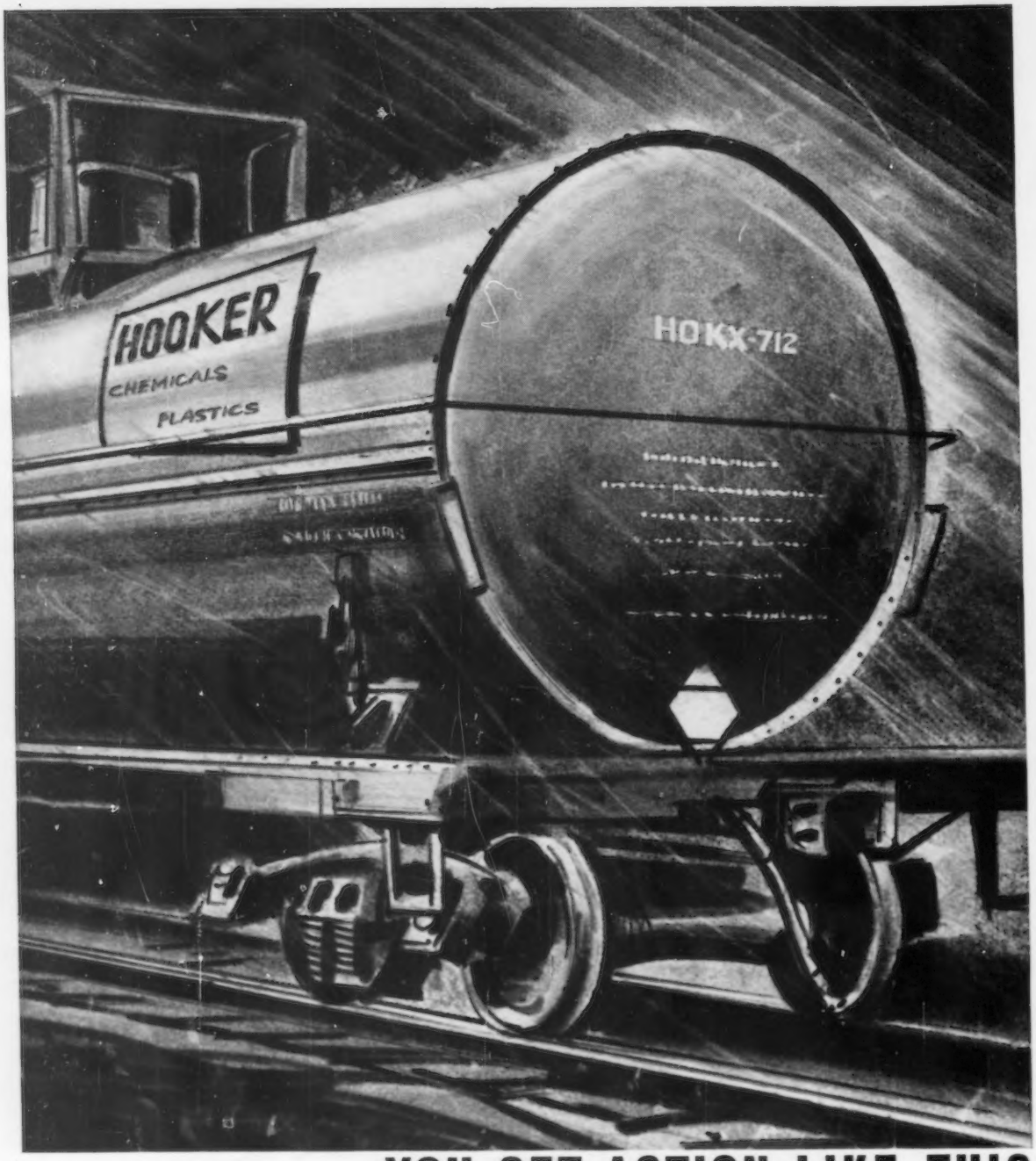
ALBANY FELT COMPANY
ALBANY, N.Y.

Dedicated to Paper Industry Progress

N. Monmouth, Maine • Hoosick Falls, N.Y. • St. Stephen, S.C.
Cowansville, Quebec • Cuautitlan, Mexico

our research program

Talk ~~It~~ Over With Your Albany Felt Sales Engineer



WHEN YOU CALL HOOKER

YOU GET ACTION LIKE THIS

One Saturday morning the telephone rang at one of our sales offices. On the other end was a desperate mill superintendent who was about to run out of sodium chlorate. Even though he wasn't one of our regular customers, we had a tank car rolling toward his mill within *minutes* of the time his call was completed, thus averting a costly shutdown. Unusual? Of course. But our record for "on time" deliveries is very good. We would like to prove this to you—with sodium chlorate, caustic soda, or chlorine.

HOOKER CHEMICAL CORPORATION
1812 Forty-seventh Street, Niagara Falls, N. Y.

Sales offices: Buffalo Chicago Detroit
Los Angeles New York Niagara Falls
Philadelphia Tacoma Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B.C.

HOOKER CHEMICALS PLASTICS

PJT NEWS OF SUPPLIERS

C. F. Jelinek

C. M. Knowles

T. D. Mutaffis

K. C. Tucker

General Aniline & Film Corp., New York, has announced the appointment of three administrative executives for the recently created Research and Commercial Development Department.

These executives will direct the activities in the major areas of the Research and Commercial Development Department.

Charles F. Jelinek was appointed manager of the group's Central Research Laboratory at Easton, Pa., where he will be responsible for new fields research programs and technical service activities carried on at that location.

Cecil M. Knowles has been appointed manager of commercial development, responsible for market research, market development and related business services and will remain at the company's offices at 435 Hudson Street, New York.

Thomas D. Mutaffis has been appointed manager of research engineering and will direct engineering research, process studies and pilot plant operations relating to new fields research programs. He will maintain his headquarters at the company's Linden, N. J., plant for the time being.

Koppers Co. has appointed Pierce Hollingsworth manager of the Industrial Gas Cleaning Department, Metal Products Division, Baltimore, Md. He had been chief engineer of the Coupling Department since 1956.

From 1947 to 1950 Mr. Hollingsworth was a project engineer with the General Engineering and Research Corp. in Trenton, N. J. In 1950 he became chief design engineer with Fisher and Porter.

Oakite Products, Inc., New York, has named Ken C. Tucker, formerly manager of the food industries division of Oakite Products, Inc., assistant sales manager of the firm, which manufactures specialized chemical compounds for industrial cleaning and metal treating.

Mr. Tucker was educated at New York University and has been with Oakite since 1945. One of his major responsibilities in his new post will be the servicing of national accounts. He will report to William A. Baltzell, vice president and sales manager.

R. T. Vanderbilt Co., Inc., 230 Park Ave., New York City, has named Ray E. Harter manager of the Paper Department. He has been with the company nearly 26 years, the past ten years as assistant manager. Prior to this he was employed by the A. E. Staley Co. and the old Kalbfleisch Corp. Mr. Harter is well-known throughout the United States and Canada.

Richard M. Talbott, who has been for the past six years New England and eastern New York State sales representative, now becomes assistant manager of the Paper Department. Prior to this he worked for three years in the company's Paper Laboratory at East Norwalk, Conn., and also during this period was very active in sales service work. Mr. Talbott previously was employed by the Longview Fibre Co. for two years as a chemical engineer.

William L. Craig becomes Coordinator for the Paper Department. This is a new position created for closer work between the New York office and the Paper Laboratories located at 33 Winfield Street, East Norwalk, Conn. Mr. Craig has been with the company 24 years. He will continue to make his headquarters at East Norwalk.

SKF Industries, Inc., Philadelphia, Pa., has acquired the assets of Nice Ball Bearing Co. (of 30th and Hunting Park Ave.), a division of Channing Corp., for an undisclosed sum, according to an announcement by George Carleton, Jr., president of Nice.

Nice employs about 800 persons and has plants located in Philadelphia and Lansdale, Pa.

George Carleton, Jr., will continue as a director and executive-committee member at Channing Corp.

Channing, a holding and operating company, has Financial and Insurance Divisions. This change completes the Channing transition to a fully integrated organization specializing in "one-stop" financial services.

The Walmsley (Bury) Group, Ltd., Bury, Lancashire, England, has now been licensed by Clupak, Inc., to build the machinery for making Clupak extensible paper. Gerald E. Amerman, president of Clupak, Inc., New York, N. Y., and Percy Holland, managing director of Walmsley's, signed the license for their respective companies.

Walmsley's is the fourth paper machine company licensed by Clupak, Inc., to build and install extensible paper machinery, others being: Beloit Iron Works, The Sandy Hill Iron & Brass Works, and Mitsubishi Heavy Industries Reorganized, Ltd., of Japan.

Link-Belt Co. has established an International Division with headquarters in the company's executive offices in Chicago, Robert C. Becherer, president, announced. Donald E. Thal has been appointed general manager of the new division and will administer the company's overseas activities outside of the United States and Canada.

These operations include Link-Belt Africa Limited of Springs, Union of South Africa and Link-belt Engenharia, Industria e Comercio Limitada, Sao Paulo, Brazil. In Australia, there is an affiliated company, Link-Belt Pty. Limited of Marrickville, New South Wales.

To serve Europe and the Mediterranean countries, Link-Belt has organized a new subsidiary, Link-Belt S.A., located in Geneva, Switzerland. This company will administer to licencees in Italy, France, Great Britain and Belgium, and also pro-

vide service to Link-Belt foreign sales representatives in the European and Mediterranean area.

Link-Belt Co.'s export office in New York will continue its operations as part of the new International Division. This office will service foreign representatives in countries not served by Link-Belt S.A.

Diamond Alkali Co., Cleveland, Ohio, has appointed Donald M. Black manager of development and market research. Mr. Black was employed previously by the Monsanto Chemical Co. for 13 years.

Link-Belt Co. has appointed Edward W. Sacoff manager of its district sales office at Moline, Illinois. He succeeds J. Charles Bullock, who died recently of a heart attack.

Mr. Sacoff, a veteran of 25 years with Link-Belt, joined the company's Pershing Road plant in Chicago in 1935. He served as a district sales engineer in the Chicago territory before his appointment as district manager at Moline. He is a graduate of De Paul University and John Marshall Law School. He received his engineering training at Illinois Institute of Technology.

Brighter whites with wet strength resins . . . acid stable
Leucophor C is the first all-purpose optical brightener to produce maximum brightness in the beater and in the tub. Excellent stability over the entire pH range eliminates the need for buffers and enables you to re-use white water containing alum and free acid. With wet-strength resins, there's no precipitation, no yellowing of the paper. Call Sandoz for a demonstration at your earliest convenience. Sandoz, Inc., 61-63 Van Dam St., New York 13, N. Y. ALgonquin 5-1700. District Offices: Charlotte; Cincinnati; Fair Lawn, N. J.; Hudson, Mass.; Los Angeles; Philadelphia
SANDOZ
THINKS AHEAD WITH PAPER
SANDOZ

F. T. Coker

E. C. Reed

Rice Barton Corp., Worcester, Mass., has elected Frederick T. Coker, Jr., to the newly created position of executive vice president.

Mr. Coker has extensive experience in paper machinery and other manufacturing industries. Prior to joining Rice Barton, he was an associate partner with Booz, Allen & Hamilton, New York. Previously Mr. Coker has been coordinator of manufacturing and industrial engineering for the Lock and Hardware Division of the Yale and Towne Manufacturing Co., and supervisor of standards and controls for M. L. Lowenstein & Sons.

Albany Felt Co., Albany, N. Y., has appointed Everett C. Reed executive vice president.

For the past three years, Mr. Reed has been in charge of manufacturing at the company's four U.S. plants which produce papermachine felts and industrial textiles. He will continue directing manufacturing activities at these mills in his new post. Mr. Reed serves on the Board of Directors of the American Parent Company, and also is a board member of the firm's Canadian and Mexican subsidiaries.

During his 21 years with Albany Felt, Mr. Reed has held several executive positions. Upon graduating from Lowell Technological Institute, he joined the company as a time study engineer. Elected an officer of the felt company in 1954, he was elevated to a full vice presidency in 1957.

Conoflow Corp. has appointed George J. Baker and Thomas Testa sales engineers working out of the New York district office.

The addition of Mr. Baker and Mr. Testa to Conoflow's New York staff will greatly facilitate the servicing of the company's many accounts in the area. Mailing address for Conoflow's New York office is 750 Third Avenue, New York 17, N. Y.

Conoflow Corp., subsidiary of Walworth Co., has executive offices and plant located at 2100 Arch Street, Philadelphia 3, Pa.

FLUIDICS* AT WORK

Checking clarified effluent of the Permutit Colloidair Separator at the Homasote Company

How to side-step a public health hazard . . . and step into big new savings

Maybe you have a problem similar to the one that confronted the Homasote Company, Trenton, N. J.

They make high-density wood fiber insulation board. The process *could* create a waste disposal problem and impair the company's good community relations.

The answer found by Homasote turned out to be more than just a waste treatment system. It is also a valuable way to save money, through reclaimed product and water.

The Permutit Colloidair Separator is behind this accomplishment.

Saves product. White water feeds into the Colloidair, where a "bubbling-out" process raises the fibers to the surface. These fibers are scraped off and reclaimed.

Saves water. No water is wasted in this closed-circuit operation. Colloidair clarifies it for Homasote's re-use in pump glands, stuffing box seals, and for general cleanup.

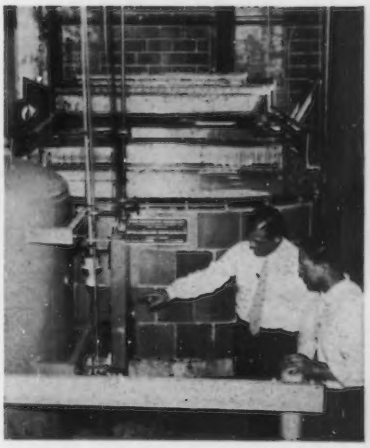
Saves heat. The reclaimed water holds most of its heat during the clarifying process. This saves the expense of reheating for re-use.

Easy to use. Colloidair works almost by itself. The operator does little more than periodically charge chemical tanks.

Homasote is getting these benefits today . . . when would YOU like to start?

We will be glad to run lab and/or pilot plant tests to show just what the Permutit Colloidair Separator can do with your white waters and/or waste waters.

Save your public relations . . . and your money. Get more information on Colloidair by writing our Permutit Division, Dept. PT-120, 50 West 44th St., New York 36, N.Y.



Observing Colloidair's chemical feed at Homasote

*FLUIDICS is a new Pfaudler Permutit program that provides a modern, imaginative approach for handling and processing liquids and gases more profitably.

PFAUDLER PERMUTIT INC.

Specialists in FLUIDICS . . . the science of fluid processes

CHAS. T. MAIN, INC.

ENGINEERS

PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION

PULP AND PAPER MILLS

STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS

BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA

J. E. SIRRINE COMPANY

Engineers Since 1902

Pulp & Paper Mills
Water Supply
Waste Disposal
Steam & Hydro Power Plants
Appraisals
Textile Mills & Finishing Plants
Surveys & Reports

GREENVILLE,
SOUTH CAROLINA

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Nov. 5	Nov. 12	Nov. 19	Nov. 26	Dec. 3
1960	91.8	96.9r	91.2r	85.8	93.0
	Nov. 7	Nov. 14	Nov. 21	Nov. 28	Dec. 5
1959	94.6	96.5	96.3	93.8	95.9

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1‡	94.6‡	—	—	—
1959	87.8	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	92.2

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	94.2	92.0	96.6	98.5	91.1	87.4	92.9	93.7
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	92.2	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Nov. 5	Nov. 12	Nov. 19	Nov. 26	Dec. 3
1960	88	92	89	81	79
	Nov. 7	Nov. 14	Nov. 21	Nov. 28	Dec. 5
1959	94	95	95	91	86

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	92	94	92	78	93	87	93	—	—	—
1959	89	94	95	94	96	96	83	97	92	96	94	80	92

‡Preliminary.
† Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING Dec. 3, 1960	WEEK ENDING Nov. 26, 1960	CUMULATIVE TO DATE Jan. 1, 1960 to Dec. 3, 1960
% Activity	79%	81%	91%
Total	280,359	270,596	14,807,734
Containerboard—Domestic Use.	145,108	135,541	7,647,900
Liner	99,517	93,205	5,135,573
Corrugating Material	41,800	37,809	2,272,659
Chip & Filler Board	3,791	4,527	239,668
Boxboard—Domestic Use	85,501	84,279	4,548,623
Folding	49,413	47,755	2,722,405
Set-Up	8,339	8,993	515,479
Special Food Board	27,749	27,531	1,310,739
Other Paperboard	49,750	50,776	2,611,211
Containerboard Type	26,418	22,988	1,250,428
Boxboard Type	23,332	27,788	1,360,783
Total Orders			
Received	307,561	261,948	
Unfilled End of Week	409,354	384,818	

Alvin H. Johnson & Co.

INCORPORATED

Consulting and Designing Paper Mill Engineers

415 LEXINGTON AVENUE, NEW YORK 17, N. Y.

PAPER MILL DESIGN — PROCESS ENGINEERING — POWER PLANTS
STRUCTURAL AND ARCHITECTURAL DESIGN
REPORTS — APPRAISALS — ESTIMATES AND SURVEYS

WHEN REPLYING to advertisements containing box numbers, please mention that box number in your address. The figures in the lower right hand corner of advertisements are NOT box numbers,—they signify the expiration date of that particular insertion.

9 KEYS TO EFFICIENT PRESSURIZED REFINING
1. Parallel feed
2. Floating rotor shaft assembly
3. Twin refining surfaces
4. Compact, accessible automatic controls
5. Hydraulically controlled refining head
6. Easy access and minimum maintenance
7. Wide choice of plate designs
8. Choice of 26", 34" or 42" size with motors up to 1250 horsepower
9. Rugged, dependable construction
SPROUT-WALDRON

SPROUT-WALDRON PRESSURIZED REFINER

twice the normal capacity in a single unit

Those in the know were quick to choose THE NEW PRESSURIZED "SPROUTS"

Here is a different type stock preparation refiner designed for superior quality control, low operating costs and minimum maintenance. The parallel feed arrangement serves twin refining surfaces, giving twice the capacity of single disc units. Key to refining accuracy and dependability is the floating rotor shaft disc assembly which rotates between the fixed and hydraulically controlled movable heads. The flow of pulp is equally distributed between both sets of plates, assuring uniform refining and even plate wear. If you are looking for mechanical simplicity, high production and uniform quality, plus low operating and maintenance costs - - get the facts on the Sprout-Waldron 20", 26", 34" and 42" pressurized refiners. Bulletins available on request.

* Container Corporation of America
Consolidated Water Power & Paper Co.
Oji Paper Company, Ltd.
Kimberly-Clark Corporation
Tammerfors Linne-Och Jern-Manufaktur, A.-B.
Manchester Paper Board Co., div of Federal Paper Board Co.

* **over 13,000 connected horsepower**

SW SPROUT, WALDRON & CO., INC.

MUNCY, PENNSYLVANIA, U.S.A.

E/209

SINCE 1866 REFINERS • CONVEYORS • FEEDERS • SCREENS • MIXERS • DRAINERS • FIBER PRESSES • STOCK PROPORTIONERS

AMERICAN AND ENGLISH CLAYS

FOR ALL PAPER MAKING PURPOSES

ANGLO-AMERICAN CLAYS CORP.

(Formerly: English China Clays Sales Corporation)

6 East 45th Street, New York 17, N. Y.

how much do you miss without this?

Spray Nozzles

COMPLETELY DESCRIBED AND ILLUSTRATED IN CATALOG 24—**WRITE FOR YOUR COPY**

The most comprehensive spray nozzle catalog ever printed. Thousands of designs and sizes . . . unequalled choice of capacities, characteristics and materials. The result of over twenty-five years of specialized research, design and manufacturing.

SPRAYING SYSTEMS CO.

3220 RANDOLPH STREET • BELLWOOD, ILLINOIS

ADVANCED DESIGN • GREATER PRODUCT CHOICE • PROMPT SERVICE

Sandy Hill cylinder moulds

Sandy Hill CYLINDER MOULDS have streamlined spiders on a large-diameter shaft with anti-friction bearings. Special features of spider construction insure even and firm support of the wire backing and facing cloth and greatly reduce agitation within the mould.

THE SANDY HILL IRON AND BRASS WORKS

HUDSON FALLS, N. Y.

Another Plant To Serve You

SHIP US IN KALAMAZOO

PACKING PLANTS
CHICAGO, ILL.
WASHINGTON, D. C.
CAMDEN, N. J.
KALAMAZOO, MICH.
LOUISVILLE, KY.

THOMAS PAPER STOCK CO.

1500 N. Hooker St. MO-4-5700 Chicago 22, Ill.

THE COWAN CENTRIFUGAL PULP SCREEN

Available in three sizes:

Mark "A," Large
Mark "E," Medium
Cowan Junior, Small

THE NEW "K" SERIES, K-400 AND K-300 AVAILABLE ALSO.

New Bulletins coming off the Press shortly.

For all types of Pulp and with Components made from alloyed materials to suit.

AUTHORIZED BUILDER

MONTAGUE MACHINE CO.

Turners Falls, Mass.

Licensed Producer of Ductile, Ni-Resist and Ductile Ni-Resist Iron.

STONE & WEBSTER SERVES THE PULP AND PAPER INDUSTRY

STONE & WEBSTER ENGINEERING CORPORATION

A subsidiary of Stone & Webster, Inc.
New York Boston Chicago
Pittsburgh Houston San Francisco
Los Angeles Seattle Toronto

STONE & WEBSTER'S SKILLED ENGINEERS ARE PREPARED TO HELP YOU WITH...

PAPER TRADE JOURNAL CLEARING HOUSE

Help Wanted

PAPER MEN

$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.

PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES

6 East Monroe, Chicago ANdover 3-1970

TF

Help Wanted

Board Mill Superintendent

We are looking for a man with experience on multi-cylinder board machines. He may already be a board mill superintendent or assistant; a tour boss or a thoroughly experienced machine tender. Our one machine mill is located in the Niagara Peninsula. Address Box 60-235 care Paper Trade Journal.

D-19

WANTED

Engineer for Sales Work at Midwest Headquarters

of one of the best known manufacturers of a product that is used on most all pulp and paper mill machinery.

Require engineering graduate with some paper mill engineering or maintenance experience under age 35—married.

Address Box 60-254
Care of PAPER TRADE JOURNAL

D-26

WANTED

Engineer for Sales Work at Midwest Headquarters

of one of the best known manufacturers of a product that is used on most all pulp and paper mill machinery.
Require engineering graduate with some paper mill engineering or maintenance experience under age 35—married.

Address Box 60-254, Care of PAPER TRADE JOURNAL

D-26

PAPER MEN

- **PRODUCTION**
- **SALES**
- **MANAGEMENT**

Find the job—at Cadillac

In all phases of the Paper, Container and Packaging Industries, through Cadillac the applicant has a choice of the finest available positions.

Find the man—at Cadillac

A substantial number of qualified men are now listed with us and are available almost immediately.

Whatever your requirements, contact us in complete confidence and without obligation.

FRED J. STEFFENS
Personnel Consultant to the Paper Industry (Member Tappi)

CADILLAC ASSOCIATES, INC.
29 East Madison Bldg. Chicago 2, Illinois
Financial 6-9400 D-19

R & D CHEMISTS

R & D Chemists needed by leading paperboard manufacturer. Candidates should be capable of independent work and able to accept project responsibility. Experience in paper or resin technology desirable. Recent graduates with outstanding academic records will be fully considered. Diversity of product, process and project work offers an above average opportunity for personal and professional growth. Salary open depending on training and experience. Submit resume, in complete confidence, to Personnel Director, Consolidated Paper Company, Monroe, Michigan.

D-19

Help Wanted Advertisements continued on page 60

GIBBS-BROWER CO., INC.

10 Depot Plaza, White Plains, New York
Established 1898

Telephone—Rockwell 1-1130

BRANCHES:
Acepsa
Albeniz #4418
Mexico 15, D.F.

400 Wash. Building
Madison 3, Wisconsin

5270 E. Wash. Blvd.
Los Angeles 22, Calif.

PRINTING PRESSES

1—30" 4-color Kidder Film Printer (New 1954)
1—41⅜" 5-color Staude Roto Gravure Press
1—51" 3-color Flexo Press
1—42" 4-color Hudson Sharp Central Impression Cylinder Flexo Press
1—42" 4-color Crawford Flexo Press
1—40" 4-color W & H Flexo Press
1—36" 6-color Cottrell Heinrich Flexo Press
1—33" 6-color Modern Clipper Flexo Press
1—33" 4-color Wolverine Hydro-Printer
1—32" 3 color Flexo Tail Printer
1—32" 4-color Schmutz Bag Press
2—Hy-Rotos: 1-26" 3-color & 1-30" 3-color
1—24" 5-color Kidder Calloprinter
1—14" 4-color Waldron Gravure Press

POWER PAPER CUTTERS

SEYBOLDS:	56"-Dayton	44"-Dexter
	50"-Precision	44"-C&P
	50"-Mod. "CF"	44"-Oswego
84"-8Z	44"-Mod. "CF"	44"-10Z
75"-Oswego	40"-Mod. "CF"	38"-Oswego
64"-Precision	50"-C&P	32"-Oswego
57"-Oswego	50"-Dexter	32"-3Y

CAMACHINES

1—162" Type 10 Model 19 Shear Cut
1—102" #18
1—87" Type 12
1—72" Type 10 6A
1—62" 26-3A
1—72" 10-10A
1—62" 10-11A
1—62"—28-3BT
1—52" 10-5A
1—52" & 1—42" Model 24-7
1—50" 28-3D
1—42", 50" & 62" Type 6
1—32" 26-3A

OTHER SLITTERS

1—82" & 1—92" "BA" Langstons
1—65" S & R (Similar Kidder Model C.W.)
1—60" & 1—40" Fales Model "C"
1—40" & 1—52" Fales Model "B"
1—60" Langston Type A
1—60" Inman With Reeves Drive
1—52" Moisel (Shear-Cut)
2—40" Beck Razor Blade Slitters
1—40" & 1—60" Kidder SH 40" rewind
1—40" Langston "Type A" (Shear-Cut)
1—24", 1—30", 1—36" & 1—[illegible]" Kidder S.L. & 1—36" SLN

MISCELLANEOUS MACHINES

1—166" Clark-Aiken Duplex Sheeter w/layboy
1—100" & 60" Hamblet w/layboy
1—78" M&W Sheeter & Layboy
1—75" Hamblet Duplex—Erie Layboy—Overlapping Delivery
1—48" Mamco Layboy
1—45" CCSH Back Sheeter
2—38" x 24" 4-Post Seybold Die Presses
5—Sheridans: 66" x 44", 60" x 30", 50" x 24", 44" x 22" & 36" x 18" and 1—Ford-Smith: 48" x 40" and 2—Hobbs 24" x 44"
Embossers 48", 38", 32" & 50" Heavy Duty Hudson Sharp Tinter-Embossar
1—40½" Hudson Sharp Toilet Interfold
1—Multipath Bag Machine—4 Color Holweg Printer
1—Honsel Millinery Bag Machine (Model S-50) Wide Range & 3 Color Printer
1—Strachan & Henshaw Bag Machine—2-color Aniline Printer
1—Beasley French F&S Bag Machine
1—Simplex 7-24 Pouch Machine
1—Matador Model #31 Bag Machine
1—Model 4 Potdevin Sack Machine
1—30" Schultz Rewinder with Electronic Drive
1—48" Schultz Rewinder
Lawtomatic Towel & Tissue Wrappers
1—Hayssen 4-roll Toilet Wrapper
1—(Round & Square) Butter Chip Machine
1—34" Waxer with 4-Ton Refrig. Unit
1—New 3 Deck Hudson Sharp 10 x 10 Cocktail and Hanky Machine
2—Hudson-Sharp Gift Wrap Folders

D-19

BARKING DRUM
1—12 ft. diameter x 45 ft. long

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs.

CALENDER STACKS
1—3 roll 84" face
1—4 roll 72" face. (Extra heavy duty)
1—5 roll 82" face.
1—5 roll 86" face

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Casthage Chipper. Anti-friction bearings, with motor

COATER
1—42" Chapman Extrusion Type Coater

CONSISTENCY REGULATOR
1—Poirier Stainless Steel, new condition

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS
5—36" diameter x 75" face, with couch rolls
1—36" diameter x 82" face.
4—36" diameter x 90" face, with couch rolls.
1—42" diameter x 96" face
2—42" diameter x 106" face
2—60" diameter x 170" face.

DECKERS
2—IMPCO Deckers (Thickeners) 48" diameter x 120" face, late type.

DRIVES
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)
2—Falk Drives, 20 h.p. & 160 h.p.

DRYERS
1—16" diameter x 54" face (steel).
1—28" diameter x 84" face.
1—28" diameter x 48" face.
2—Calender Dryers, bronze, 30" x 128" with frames, gears & necessary rolls to make up the unit.
1—36" diameter x 44" face.
5—36" diameter x 76" face.
23—36" diameter x 84" face.
14—48" diameter x 48" face with bearings.
2—48" dia. x 52" face with frames, gears, bearings
2—48" x 60" face frames, gears & bearings
1—48" x 96" face.
6—48" diameter x 130" face.
1—60" diameter x 92" face, anti friction bearings.
1—73" diameter x 66" face, with bearings.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—48" 2-roll Meadows Embossing Calender
1—51½" 3-roll Smoothing Calender.
1—57" 3-roll Embossing Calender.
1—62" 2-roll Embosser.
1—90" 2-roll Smoothing Calender.

FILTER
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS
1—12 Plate "Packer"
4—14 Plate IMPCO, bronze vats

JORDANS
1—#1 Jones High Speed Jordan
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Monarch, Type D, anti friction bearings.
1—Noble & Wood Baby Jordan, anti friction bearings, with 20 h.p. motor.
1—#6 Miami, anti friction bearings.

KNIFE GRINDER
1—70" Seybold.

LABORATORY EQUIPMENT
1—4" face x 36" diameter Saveall
1—Washer for 5 lb. Beater.
1—24" Saveall, stainless steel.
1—20" Fourdrinier Wet End & Press Section.
1—12" x 12" Valley Sheet dryer.
1—18" x 20" Williams Sheet Dryer
1—15 lb. E. D. Jones Beater.
2—Noble & Wood Cycle Beaters with motors & stands
1—1½ lb. Valley Iron Works Beater, motor and stand.
1—Greene Freeness Tester.
1—Cady Micrometer.
7—Mullen Testers, motorized.
1—2 qt. Auto Clave, Stainless Steel.
2—Elmendorf Tear Testers.
1—27" High Solid Coater.
1—Noble & Wood Baby Jordan, anti friction bearings, with 20 h.p. motor.
2—Emerson, Jr., No. 1 Jordans, anti friction bearings.

MISCELLANEOUS
1—Bird Centriffier, built 1958, new condition.
1—Shartle Hydrafuge, 1000 g.p.m. (with motor)
1—Bird Centriffier, stainless steel.

MOTORS
4—25 h.p. Westinghouse, totally enclosed, ball bearing. 705 r.p.m

PRESSAFINER
1—7" Pressafiner, stainless steel construction, new 1955, with new spare motor.

PRESS ROLLS
2—Chilled iron, chrome plated 9" x 72".
1—Chilled iron, chrome plated 10" x 74"

PULPERS
1—#1 Jones Pulp Master.

PUMPS
1—Economy Fan Pump 6000 g.p.m., 20' head, 50 h.p. motor.

REELS
1—72" Downingtown Reel, 2 bowl.
1—84" 3 bowl revolving reel.
1—86" 2 bowl reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—116" Downingtown, 2 bowl, anti friction bearings.
1—133"—3 bowl Revolving Reel.
1—134" 2 drum.

REFINERS
1—Rice Barton Dynofiner, details on request.
1—12" Wiener Refiner, with 200 h.p. motor
2—36" Baner double disc #185E Refiners, each with two 100 h.p. motors.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
4—#2A Bird Rotary Screens, copper vats.
7—Trimbey, Senior Knotter Screens.
1—#2A—50 Bird, copper vat.
2—APMEW Rotary Pulp Screens.

SAVEALLS
2—#6 Bird Savealls.
1—24" Continuous Saveall, stainless steel
1—LaMort 48" diameter x 82" face cylinder mold.
2—Savealls, cylinder molds, 42" diameter x 106" face, brand new vats.
2—Savealls, Rice Barton, cast iron vats, cylinder molds 48" diameter x 128" face, complete with 18" diameter couch rolls, all in very good condition.

SHREDDERS
1—16" "Swift" Paper Shredder.
2—Taylor Stiles Rag Cutters.

SLITTERS & WINDERS
1—26" Cameron Type 26-2A, complete constant tension & electric eye
4—42" Cameron Type 6.
1—42" Cameron Type 26-2A.
1—42" Cameron Type 40-2.
1—50" Cameron Type 6.
3—52" Cameron Type 9
1—62" Cameron Type 6
1—72" Cameron Type 28-3-D
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder.
1—64" Waldron, Shear cut.

SLITTING DEVICE
84" Quick change slitting device shear cut, complete

STOCK PUMP
1—12 x 20 Shartle Triplex, with spare parts.

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127¼" face 26" diameter.

SUCTION COUCH ROLL
1—Beloit, 36" diameter x 246" face, SKF bearings.

SUCTION FELT ROLL
1—Gilbert & Nash 122" face.

SUCTION PRESS ROLL
1—Sandusky 18" dia. x 138" face Suction Press Roll.

SUPER CALENDER STACKS
1—9 Roll 56".
1—13 roll 53" Norwood, anti friction bearings.

TOILET WINDERS
1—72" Hudson-Sharp (Surface type winder).

TRIMMERS
1—44" Seybold Trimmer

VACUUM PUMPS
2—#3 Nash Hytor.
1—#4 Nash Hytor
1—#7 Nash Hytor, with 75 h.p. synchronous motor.
1—H-3 Nash.
1—K-5 Nash.
2—L-4 Nash.
3—L-5 Nash.
2—Connersville, 14 x 20.

VATS
2—Brand new Downingtown Iron End Vats, for 42" diameter x 112" face cylinder molds. Will cut down to your size.

WET MACHINES
1—84" IMPCO Wet Machine

YANKEE DRYER
1—60" diameter x 92" Face, anti-friction bearings.
1—73" diameter x 66" face, with bearings.
1—12 ft. diameter x 181½" face.

Paddy Ross, Pres.

J. J. ROSS COMPANY

377 Frelinghuysen Ave. **Tel.—Bigelow 3-3720** **Newark 12, N. J.**

Help Wanted

WANTED

Chief Engineer, with Mechanical or Electrical Engineering Degree, to take full charge of all mechanical and electrical maintenance, power and plant engineering departments.

Must have strong organizational and leadership ability. Experience in Paper Mill maintenance, power and engineering required.

Mill located about ten miles northwest of Center Philadelphia in Montgomery County, Pennsylvania, in an area with a wide choice of desirable living conditions.

Write to: Mr. Paul R. Dugan, Personnel Director
Hamilton Paper Company, Miquon, Pa.

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A Nalco PRODUCT MANAGER

Answers Questions About Slimes in Pulp and Paper Mills

Facts about a tough, continuing paper mill problem

Slimes are expensive—whether they slow production, spot finished paper, produce foul odors, increase maintenance time and expense, or corrode equipment, they cost the papermaker money. Here are a few of the more common questions about papermill slimes and slime control, answered for you by R. E. Eddy, product manager of Nalco Chemical Company's paper chemicals department.

Question: What Are Slimes?

Answer: Microbiological slimes are deposits of substances exuded by microorganisms, and chemical slimes are accumulations of water-borne fibers and chemicals. Microbiological slimes serve as a binder for chemical slimes, which in turn harbor the microorganisms which produce microbiological slimes. Slimes, however, are *not* microorganisms, but rather are substances produced *by* microorganisms.

Question: Why is slime control difficult in the paper industry?

Answer: Because paper mill systems provide the food supply, moisture, darkened recesses, and temperatures ideal for slime growth. Some organisms, not considered slime-producers in other industries, become of serious concern to the papermaker because of these ideal growth conditions.

Question: How can slime be controlled?

Answer: By establishing and maintaining a complete slime control program, to include chemical and physical analyses of the troublesome deposits, a survey of the paper mill system, and the application of chemical and mechanical slime control methods.

Question: What are the major considerations in a slime control program?

Answer: Types of organisms, points of infection, and flow of infection. Microbiological analysis of slime deposits shows which particular slime-forming microorganisms (spore formers, non-spore formers, fungi) are present in a given system, and analysis of stream samples points out centers of infection and flow of infection. In addition, an overall engineering survey of the entire system should be made, including flow diagrams, information on chemicals and raw materials used, water consumption rates, points and quantities of white water usage, system temperatures, and pH conditions. All of this information is then coordinated into a program of control.

Question: Who does the coordinating?

Answer: Your Nalco field representative can do it for you. Working in your mill, with your personnel, he will determine the best overall slime control program for your particular system. In addition to his own skills and experience in slime control, the Nalco field representative has the skills, experience, and facilities of Nalco's laboratories to call on if necessary.

Question: What does Nalco offer in the way of slime control?

Answer: A wide variety of quality products, excellent customer service, and a solid foundation of slime-control experience and knowledge. Nalco slimicides are available for use under any number of conditions—against different types of slime formers, in acid or alkaline operations, for continuous, intermittent, or slug feeding. No single slimicide can control all kinds of slime under all conditions, but your Nalco field representative can find the right combinations of slime-controlling chemicals for your mill, and determine the most economical method of application. The Nalco field representative will serve as a slime-control consultant—and even if there is a question he isn't able to answer immediately, he knows where to go to get the information he needs: Nalco's laboratories.

R. E. Eddy, Product Manager
Paper Industry Chemicals Department

Question: Why are there occasional flare-ups of new types of slime, even where a slime control program is in effect?

Answer: Because microorganisms compete for food. As one type of microorganism is eliminated, more food becomes available for other types. Other organisms get more food, thus flourish. Also, new types of microorganisms may be carried into the mill system via air, water, or raw materials. That's why a slime control program must be a continuing effort, ready to counter and destroy any new type of organism as soon as it appears.

Question: What's new in slime control?

Answer: Among other things, Nalco's organo-sulfur slimicides, available in liquid (Nalcon 242) and solid ball briquette (Nalcon 245) form. These Nalcon slimicides are effective additions to Nalco's proven line of slime control chemicals.

Question: What are Nalcon slimicides?

Answer: A combination of a powerful organo-sulfur microbiological agent and anionic dispersants. The organo-sulfur agents destroy slime producers (especially effective on non-spore formers) and the anionic dispersants have a dual function – they carry the organo-sulfurs to every part of the system, and they break up deposits of chemical slime. Nalcon slimicides aren't retained in finished paper, are non-phenolic and non-metallic. They have also been approved by the U.S. Food and Drug Administration for use in the manufacture of paper products to be used for food packaging.

Question: How quickly can an effective slime control program be established?

Answer: As quickly as you wish. Call your Nalco representative for prompt action, or write me for further details: R. E. Eddy, Product Manager, Paper Industry Chemicals Department.

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